Western Refining

St. Paul Park

CERTIFIED MAIL: 9171 9690 0935 0093 2022 72

April 28, 2017

Air Quality Tracking Coordinator
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

RE: Complete First Quarter 2017 Excess Emission and CEM Report
St. Paul Park Refining Co. LLC
AQD Facility ID No: 16300003
AQD File No: 0203 (AI ID 447)

Dear Sir/Madam:

St. Paul Park Refining Co. LLC is providing the Minnesota Pollution Control Agency (MPCA) with the Excess Emission and Continuous Emissions Monitor (CEM) Downtime Report for 1st Quarter 2017. A previous version of this report was sent dated April 25, 2017; however, the narrative portion of the report was missing. Attached is the complete report.

Please contact me at (651) 769-6766 if you have any questions or if you need additional information.

Respectfully,

Shannon R. Lian
Environmental Supervisor
St. Paul Park Refining Co. LLC

Enclosures

cc: Patrick Foley (EPA) w/report – CERTIFIED MAIL: 9171 9690 0935 0093 2022 89
USEPA c/o Matrix w/report – CERTIFIED MAIL: 9171 9690 0935 0093 2022 96
Ms. Jennifer Carlson (MPCA) w/report – CERTIFIED MAIL: 9171 9690 0935 0093 2023 02
Ms. Cheryl Newton (EPA) w/report – CERTIFIED MAIL: 9171 9690 0935 0093 2023 19

Western

St. Paul Park

CERTIFIED MAIL: 9171 9690 0935 0093 2020 98
April 25, 2017

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Please contact Shannon Lian at (651) 769-6766 if you have any questions or if you need additional information.

Respectfully,

Richard Hastings
Vice President and Refinery Manager
St. Paul Park Refining Co. LLC

Enclosures

cc: Patrick Foley (EPA) w/report – CERTIFIED MAIL: 9171 9690 0935 0089 4333 07
USEPA c/o Matrix w/report – CERTIFIED MAIL: 9171 9690 0935 0093 2021 80
Ms. Jennifer Carlson (MPCA) w/report – CERTIFIED MAIL: 9171 9690 0935 0093 2021 97
Ms. Cheryl Newton (EPA) w/report – CERTIFIED MAIL: 9171 9690 0935 0093 2022 03

First Quarter 2017
Excess Emission and CEM Report

St. Paul Park Refining Co. LLC

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Section 1

Report Certification

Certification for First Quarter 2017 CEM Excess Emission and CEM Downtime Report

As of September15, 2016, Western Refining Terminals, LLC, assumed ownership of certain assets associated with the St. Paul Park Refinery. This change in ownership is reflected in an administrative amendment submitted to MPCA originally on September 21, 2016 with a revised submittal provided on November 15, 2016. A separate certification is provided by Western Refining Terminals, LLC as co-permittee for those assets.

This section of the report serves as the St. Paul Park Refining Co. LLC written certification of the information contained within this report. This certification is comprehensive of the entire report and replaces the need for certification of each of the Excess Emissions and CEM Reporting Forms.

St. Paul Park Refining Co. LLC

Based on the information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

St. Paul Park Refining Co. LLC

Richard Hastings, Vice President and Refinery Manager

4/25/2017
Date

Certification for First Quarter 2017 CEM Excess Emission and CEM Downtime Report – VRU (EQUI028) and VCR (COM028)

As of September15, 2016, Western Refining Terminals, LLC, assumed ownership of certain assets associated with the St. Paul Park Refinery. This change in ownership is reflected in an administrative amendment submitted to MPCA originally on September 21, 2016 with a revised submittal provided on November 15, 2016 This change in ownership is reflected in an administrative amendment submitted to MPCA on November 15, 2016. Pursuant to that amendment and the associated change in ownership, this certification is provided by Western Refining Terminals, LLC as co-permittee for those assets now owned and operated by Western Refining Terminals, LLC.

This section of the report serves as the Western Refining Terminals, LLC written certification of the information contained within this report. This certification is comprehensive of the entire report and replaces the need for certification of each of the Excess Emissions and CEM Reporting Forms.

Western Refining Terminals, LLC

Based on the information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

Western Refining Terminals, LLC

Matthew L. Yoder, Senior Vice President Operations

4/26/17
Date

Section 2

Report Summary

1st Quarter 2017 - Percent Excess Emissions and CEM Downtime Summary

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
Refinery Fuel Gas Drum (H2S ppmv, 3-hr rolling ave)	0.00%	0.56%
Refinery Fuel Gas Drum (H2S ppmv, 365-day rolling ave)	0.00%	0.56%
Heater 28-B-1 (lb SO2/mmbtu, 3 hr average)	0.00%	---
Heater 28-B-1 (lb SO2/hr, 3 hr average)	0.00%	---
Heater 28-B-1 fuel gas flow meter	---	0.42%
Heater 28-B-1 fuel oil flow meter	---	0.00%
FCC Opacity	0.01%	0.51%
FCC CO (ppm)	0.14%	0.69%
FCC NOx (ppm - 365 day rolling average)	0.00%	0.69%
FCC NOx (ppm - 7 day rolling average)	0.00%	0.69%
FCC SO2 (ppm - 7 day rolling average)	0.00%	0.69%
FCC SO2 (ppm - 365 day rolling average)	0.00%	0.69%
FCC SO2 (lb/hr)	0.00%	0.69%
FCC SOx (lb/1000 lb coke burn)	0.00%	0.69%
Heater 5-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 5-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 5-B-1 fuel gas flow meter	---	0.42%
Heater 5-B-1 fuel oil flow meter	---	0.00%
Heater 2-B-3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.42%
Heater 2-B-3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 2-B-3 (lbs NOx/mmbtu, 3-hr rolling ave)	0.00%	0.56%
Heater 2-B-3 (lbs NOx/mmbtu, 12-Month rolling ave)	0.00%	0.56%
Heater 2-B-3 NSP fuel gas flow meter	---	0.42%
Heater 2-B-3 Fuel Gas flow meter	---	0.42%
Heater 2-B-3 NOX/O2 CEM	---	0.56%
Heater 1-B-5 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 1-B-5 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 1-B-5 fuel gas flow meter	---	0.42%
Heater 1-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 1-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 1-B-7 fuel gas flow meter	---	0.46%
Heater 1-B-7 fuel oil flow meter	---	0.00%
Heater 29-B-1/29-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 29-B-1/29-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 29-B-1/29-B-2 fuel gas flow meter	---	0.00%
Heater 3-B-1/2/3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-1/2/3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-1/2/3 fuel gas flow meter	---	0.00%
Heater 3-B-4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-4 fuel gas flow meter	---	0.00%
Heater 3-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-7 fuel gas flow meter	---	0.00%
Heater 3-B-8 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-8 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-8 fuel gas flow meter	---	0.00%
Heater 34-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 34-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 34-B-1 fuel gas flow meter	---	0.00%
Heater 34-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 34-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 34-B-2 fuel gas flow meter	---	0.00%
Heater 34-B-2 fuel gas flow meter	---	0.00%
Heater 32-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 32-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 32-B-1 fuel gas flow meter	---	0.09%
Heater 32-B-1 (NOx lb/mmbtu, 365 day rolling ave)	0.00%	0.09%
Heater 10-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 10-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 10-B-1 fuel gas flow meter	---	0.00%
Heater 10-B-1 fuel oil flow meter	---	0.00%

1st Quarter 2017 - Percent Excess Emissions and CEM Downtime Summary

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
#2 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.60%
#2 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.60%
#2 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.60%
#2 SRU/SCOT bypasses	0.00%	---
Heater 36-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-1 fuel gas flow meter	---	0.00%
Heater 36-B-2, 3, and 4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-2, 3, and 4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-2, 3, and 4 fuel gas flow meter	---	0.00%
Heater 36-B-6E (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-6E (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-6E fuel gas flow meter	---	0.05%
Heater 36-B-6W (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-6W (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-6W fuel gas flow meter	---	0.05%
Heater 37-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 37-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 37-B-1 fuel gas flow meter	---	0.00%
Heater 37-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 37-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 37-B-2 fuel gas flow meter	---	0.00%
Heaters 38-B-1, 38-B-2 (lb SO2/hr, 3-hr rolling ave)	0.00%	---
Heaters 38-B-1, 38-B-2 (lb SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heaters 38-B-1, 38-B-2 NSP Gas flow meter	---	0.00%
Heaters 38-B-1, 38-B-2 PSA fuel gas flow meter	---	0.00%
Light oil loadrack **VRU** (TOC ppmv, 6-hr average)	0.00%	0.32%
Light oil loadrack- **Permanent** VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave)	0.00%	0.00%
Refinery flare (presence of pilots)	0.00%	0.08%
Refinery flare (MMSCF/24-hours)	0.00%	0.00%
Refinery flare - SARA Reportable emissions - SO2	0.00%	1.85%
Refinery flare - SARA Reportable emissions - NOx	0.00%	---
Refinery flare - H2S (3-hour rolling average)	3.33%	1.81%
W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave)	0.00%	0.00%
W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.00%
W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.00%
#3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.46%
#3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.46%
#3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.46%
#3 SRU/SCOT Bypasses	0.00%	---
NP VEPR Phase 1 - **Catalytic AB** w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
NP VEPR Phase 2 - **Catalytic AB** w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
Boiler 7 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	0.42%
Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	---
Boiler 7 fuel gas flow meter	---	0.42%
Boiler 8 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	0.42%
Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	---
Boiler 8 fuel gas flow meter	---	0.42%
Heater 8-B-1 (lb SO2/mmbtu, 3-hr average)	0.00%	---
Heater 8-B-1 (lb SO2/hr, 3-hr average)	0.00%	---
Heater 8-B-1 (ppmvd, 30-day average)	0.00%	0.46%
Heater 8-B-1 fuel gas flow meter	---	0.42%
GP 032 CO (TPY, Combined 12-month Rolling Sum)	0.00%	---
Boiler 7 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 8)	---	0.42%
Boiler 8 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 7)	---	0.42%
GP 032 NOx (TPY, Combined 12-month Rolling Sum)	0.00%	---
Boiler 7 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 8)	---	0.42%
Boiler 8 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 7)	---	0.42%

Notes:

(1) 0.00% indicates No Excess Emissions.

(2) Monitor Downtime includes daily calibration checks for opacity.

(3) 0.00% indicates No Monitor Downtime.

Excess Emissions Summary
First Quarter 2017

Excess Emissions Summary

Incident A – FCC Oxygen Skid Trip Due to Loss of Linde Plant, FCC CO, Opacity and Flare H_2S Exceedances

On January 6, 2017, at 2:22 PM purchased oxygen from the Linde Plant primary supply system shutdown suddenly. The back-up oxygen supply system kicked-in briefly, and the FCC Console Operator began corrective actions immediately, including cutting rate and increasing blower air to the regenerator. At 2:27 PM the Linde back-up system also failed. Operators continued corrective actions. The unit was brought back in-line at approximately 4:40 PM. Linde oxygen was reliably brought back on January 8, 2017 at approximately 6 PM. FCC Carbon monoxide (CO) emissions exceeded the 1-hr average for 3 hours, opacity excursions occurred for 18 minutes and the flare emissions exceeded the H_2S limit for 3 hours. There was no exceedance of the flare 500 lbs. SO_2 /24-hour or 1.31 mmscf/24-hour flare vent gas work practice standard.

Operator actions were consistent with FCC Emergency Operations Procedure for Loss of the Purchased O2. Corrective actions made by the console operator included, increasing blower air, cutting feed, increasing charge heater outlet temperature, adding promoter, and reducing resid rate. The root cause was failure of sole sourced outside suppler (i.e., Linde) to provide material necessary for reliable production of products. The incident will be reviewed with Linde to determine actions taken by the supplier to ensure reliability of their back-up systems.

Since measured CO data points are not verifiable or accurate when 50% greater than the high calibration gas concentration, a value of 1,332.0 ppm (1.5 times the daily span calibration gas concentration of 888.0 ppm CO) was substituted for all greater data points. The recalculated and verifiable value is provided in the last column of the table. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 500 ppm CO @ 0% O_2 1-hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)
1	1/06/17 15:00	1221	690
2	1/06/17 16:00	1058	1063
3	1/06/17 17:00	1026	815

Periods over 30% Opacity (Running total)	Periods over 30% Allowed (Running total)	Date and End Time	6-minute Average Opacity (% opacity)	Startup, Shutdown, Malfunction, Allowed or Exceedance	Inlet Cyclone Velocity, (fps)
1	1	1/06/17 15:12	31.5	Allowed	
2		1/06/17 15:18	30.8	SSM	61.3
3		1/06/17 15:24	36.1	SSM	61.1
4		1/06/17 15:30	35.5	SSM	62.2

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	1/06/17 17:00	676
2	1/06/17 18:00	688
3	1/06/17 19:00	633

Incident B - Exceedance of Flare 3-hr H_2S Limit

On January 11, 2017, the Blending Board noted an increase in H_2S in the flare and increased the amount of flare H_2S scavenger ("Sulfix"). However, the valve for the supplemental natural gas that carries the Sulfix to the flare was closed. The Board instructed an operator to open the natural gas supply valve. The operator opened the natural gas supply valve at ground level but did not realize the overhead natural gas supply gas valve was also closed. When the Board realized natural gas was still not flowing, additional instruction was provided to the operator to open the overhead natural gas supply valve. When the main natural gas supply valve was opened, the Sulfix reduced flare $H_2S < 162$ ppm.

At the time of the incident, the flare high H2S troubleshooting guide was used to identify a source of high H_2S. No equipment was known to be venting to the flare due to start-up, shutdown, or malfunction. Although an incident investigation was completed, the source of the high H_2S to the flare is unknown.

If the Blending Board had been successful in increasing the amount of Sulfix to the flare when the high H_2S was noted, the flare 3-hr H_2S limit would not have been exceeded. The root cause of the incident was the operator's lack of awareness that the main natural gas supply valve was closed. To ensure the supplemental natural gas remains in an open position in the future, a car seal will be used. SPPRC is continuing to learn how to optimize the use of the Sulfix to control high H_2S flare events.

There was no exceedance of the flare 500 lbs. SO_2 /24-hour or 1.31 mmscf/24-hour flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	1/11/17 08:00	221
2	1/11/17 09:00	283
3	1/11/17 10:00	229

Incident C – Flare H2S Exceedances Due to Trips on Crude Main Tail Gas Compressor Due to Low Oil Pressure and Repairs

Low Oil Gas Pressure Trips #1 & #2

On February 6, 2017, the Board Operator received an alarm that the crude main tail gas compressor tripped. Shortly after the trip, the pilot relief valve opened to the flare as required for safety and protection of the equipment. Troubleshooting by the operator determined there was no oil pressure on the local compressor gauge. The auxiliary oil pump was switched on manually and oil pressure was restored to the compressor. The auxiliary oil pump should automatically turn on any time low oil pressure is detected on the compressor but failed to do so at the time of the trip. Plans were made to shutdown the compressor on February 7th to determine the cause of the compressor low oil pressure and the reason the auxiliary oil pump did not switch on automatically.

On February 7, 2017, following compressor shutdown, maintenance determined that repairs were needed to the main tail gas compressor oil pump and that the reason the auxiliary pump did not switch on automatically was due to a PLC issue. If the auxiliary pump would have switched on automatically, a low pressure situation would not have occurred and the compressor trip would have been avoided. Initial repairs were made to the main oil pump and plans were made to perform more extensive troubleshooting during upcoming compressor major maintenance, scheduled for February 23, during which the control PLC was scheduled for replacement. In the interim, the auxiliary pump was set to run continuously vs. stand-by to maintain oil pressure when the main tail gas compressor was placed back on-line until the scheduled outage on February 23rd.

On February 17, 2017, low oil pressure was detected again on the main tail gas compressor and the compressor automatically shut down for safety and protection of the equipment. The auxiliary oil pump was in an automatic position but was unable to respond when low oil pressure was detected. There was no control panel or DCS indication that the auxiliary pump was running or stopped. Due to the shutdown of the compressor, sour gas was flared for approximately 16 minutes until the compressor was restarted and the flaring stopped. Immediate corrective actions included reestablishing the oil pressure and restart of the main tail gas compressor.

Even though repairs were made to the main oil pump on February 7th, additional troubleshooting following the second trip identified incorrect pump rotation as the cause of the low oil pressure that led to the compressor trips on February 6th and February 17th.

During the scheduled outage on February 23rd, the new PLC for the auxiliary oil pump was installed. As an additional preventive measure, an indicator for the auxiliary oil pump will be installed to alert operations when the auxiliary pump is running/not running. Direct measurement of pump status will enhance situation awareness and troubleshooting for future compressor trip events. During the week February 27th to March 2nd, the repairs to the pump rotation were completed.

There was no exceedance of the flare 500 lbs. SO_2 /24-hour or 1.31 mmscf/24-hour flare vent gas work practice standard for the events on February 6th or February 17th. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	2/06/17 08:00	362
2	2/06/17 09:00	381
3	2/06/17 10:00	387

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	2/17/17 13:00	463
2	2/17/17 14:00	541
3	2/17/17 15:00	545

Shutdown of Crude Main Tail Gas Compressor, Purging High H_2S

On February 7, 2017, to determine the cause of the low oil pressure trip of the main tail gas compressor and failed automatic start-up of the auxiliary oil pump, operations switched from the main tail gas compressor to the back-up tail gas compressor in order to perform inspection and maintenance. While purging the main tail gas compressor to the flare to prepare for maintenance, flare H_2S exceeded the 3-hour rolling average 162 ppm limit. To prepare for the purging, the flare H_2S ("Sulfix") scavenger was increased at the HDH injection point and not the main flare injection point which would have provided more immediate control for increased H_2S emissions from purging of the main tail gas compressor. The root cause of the H2S exceedance on February 7, 2017 was due to the flare troubleshooting guide not providing specific timing or introduction of the scavenger prior to the beginning of compressor purging or guidance on which of the flare scavenger points to engage first, depending on the source of the high H2S. To ensure use of the main flare injection point for Crude Unit events in the future, the flare troubleshooting guide was updated to include a step for starting scavenger injection proactively and include length of time to wait before beginning sweep and which injection location should be used (i.e., main flare injection point). As mentioned previously, SPPRC is continuing to learn how to optimize the use of the Sulfix to control high H_2S flare events.

There was no exceedance of the flare 500 lbs. SO_2 /24-hour or 1.31 mmscf/24-hour flare vent gas work practice standard for the events on February 7th. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	02/07/17 21:00	181
2	02/07/17 22:00	175
3	02/07/17 23:00	165

Incident D – Exceedance of Flare 3-hr H_2S Limit

On February 8th, the Blending Board reported increased H_2S to the flare. Operations initiated troubleshooting procedures, and maximized Sulfix (i.e., flare H_2S scavenger) addition to the flare. Operations proceeded with a series of troubleshooting efforts to identify the source of H_2S in the flare over the period of 2/8-2/10 by engaging and dedicating representatives from Technical Services, Operations, Laboratory and Environmental Departments.

From February 8-9th, efforts focused on the Crude Unit due to the high H_2S event that occurred on 2/7/17. Tail gas compressors were switched from the back-up to the main tail gas compressor. Operations then started a process of isolated various components that vent to the flare in the DU and Sat Gas Units to identify changes in flare flow. There was no change in flare H_2S after these actions were taken. Sampling of flare gas header legs (e.g., FCC Alky, Sat Gas, Penex, HDH, and DDS) was conducted with the investigation focused on the HDH and DDS Units. Repeat sampling eliminated the DDS Unit as a source. The dry HDH header was then confirmed as the source of high H_2S. Investigation and sampling of individual sources in the HDH started.

From February 9-10th, troubleshooting continued and subsequent sampling and flare indications showed falling H_2S. At 5:00 pm on February 10th, the 3-hr flare H_2S rolling average was $\leq$ 162 ppm. High H_2S was originating from a source that vents to the HDH dry header (e.g., compressor knock out drum and > 10 pilot process safety valves). A specific source could not be determined because the H_2S levels had returned to normal levels at the flare and in the flare headers.

As a result of this event, the Refinery procedure for troubleshooting high H_2S in the flare was updated to require steps to check each primary flare header leg for H_2S during an event to ensure a quick response and H_2S source identification during future flare high H_2S events.

There was no exceedance of the flare 500 lbs. SO_2 /24-hour or 1.31 mmscf/24-hour flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	02/08/17 09:00	398
2	02/08/17 10:00	1203
3	02/08/17 11:00	1938
4	02/08/17 12:00	2291
5	02/08/17 13:00	2182
6	02/08/17 14:00	2058
7	02/08/17 15:00	1909
8	02/08/17 16:00	1753
9	02/08/17 17:00	1664
10	02/08/17 18:00	1640
11	02/08/17 19:00	1670
12	02/08/17 20:00	1776
13	02/08/17 21:00	1898
14	02/08/17 22:00	2009
15	02/08/17 23:00	2083
16	02/09/17 00:00	2171
17	02/09/17 01:00	2230
18	02/09/17 02:00	2275
19	02/09/17 03:00	2313
20	02/09/17 04:00	2395
21	02/09/17 05:00	2471
22	02/09/17 06:00	2459
23	02/09/17 07:00	2306
24	02/09/17 08:00	2123
25	02/09/17 09:00	1932
26	02/09/17 10:00	1823
27	02/09/17 11:00	1675
28	02/09/17 12:00	1652
29	02/09/17 13:00	1594
30	02/09/17 14:00	1508
31	02/09/17 15:00	1328
32	02/09/17 16:00	1165
33	02/09/17 17:00	1068
34	02/09/17 18:00	987
35	02/09/17 19:00	931
36	02/09/17 20:00	884
37	02/09/17 21:00	856
38	02/09/17 22:00	817
39	02/09/17 23:00	793
40	02/10/17 0:00	769
41	02/10/17 01:00	751
42	02/10/17 02:00	729

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
43	02/10/17 03:00	716
44	02/10/17 04:00	705
45	02/10/17 05:00	695
46	02/10/17 06:00	684
47	02/10/17 07:00	679
48	02/10/17 08:00	678
49	02/10/17 09:00	663
50	02/10/17 10:00	643
51	02/10/17 11:00	625
52	02/10/17 12:00	617
53	02/10/17 13:00	582
54	02/10/17 14:00	516
55	02/10/17 15:00	419
56	02/10/17 16:00	310
57	02/10/17 17:00	206

SARA Reportable Release Summary

There were no SARA reportable releases during 1st quarter 2017.

SBC/BWON Vent Gas System

During the 1st quarter of 2017, BWON vent gasses were bypassed around the WWTP TO and associated temperature monitor 4.4% percent of the time or 94.6 hours. Troubleshooting has been on-going since 4QTR2016 and determined that hydrocarbons were flashing when desalter brine was diverted to the WWTP Surge Pit during mud washing. Level swings in the Surge Pit was transferring rich, combustible hydrocarbon vapors from the Surge Pit to the Thermal Oxidizer (TO). The TO would either trip on high stack temperature or loss of flame. The desalter brine exchangers were cleaned which has reduced the amount of rich combustibles carried over to the TO and related trips. An alarm will also be established to alert operators to high desalter brine temperature so action can be taken.

Monitor Bypass Summary

There were no monitor bypasses during the 1st quarter 2017.

SRU Bypass Summary

There were no SRU bypasses during the 1st quarter 2017.

1B5 Corruption of Flow Data

From February 13, 2017 – March 30, 2017, fuel gas flow data for 1B5, PI tag 1FC16.pv, was corrupted within the Refinery's Distributed Control System (DCS). Data for the 1B5 fuel gas control valve (1FC16.op) and set point (1FC16.sp) were both available to demonstrate the flow meter was operational for the period in question. For each reading, the set point (1FC16.sp) is compared to the flow meter reading (1FC16.pv). The set point value recorded is updated to reflect the actual flow meter reading. A record of the fuel gas readings is available from the set point data.

Section 3

Excess Emissions and CEM Reporting Forms

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity
Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: Vista 2020 GC

MFR: Combustion Engineering

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: COMG7

EMISSION LIMITS AND AVERAGING TIME:
162 ppm H2S - 3 hr rolling average
60 ppm H2S - 365 day rolling average

EMISSION UNIT(S): Refinery fuel gas system

EMISSION BASIS: 40 CFR 60 NSPS Subpart Ja

ASSOCIATED ITEMS: EQUI1, EQUI3, EQUI4, EQUI5, EQUI6, EQUI7, EQUI8, EQUI9, EQUI10, EQUI11, EQUI12, EQUI13, EQUI14, EQUI15, EQUI17, EQUI18, EQUI19, EQUI20, EQUI21, EQUI26, , EQUI326, EQUI23, EQUI24, EQUI33, EQUI42, EQUI43, and EQUI44.

NOTE: H2S limits within 40 CFR 60 Subp. Ja only apply to EQUI42, EQUI43, and EQUI44.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	3-hour	365-day
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	2.00
d) Other known causes	10.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	12.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.56%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 365-day average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
	0.00	
Total	0.00	
b) Non-monitor malfunction		
	0.00	
Total	0.00	
c) QA calibration		
2/3/2017 8:00		
2/3/2017 10:00	2.00	Quarterly calibration audit.
Total	2.00	
d) Other known causes		
1/17/2017 16:00		
1/17/2017 22:00	6.00	Disconnection of air supply line to analyzer. Connection repaired and analyzer flame was relit.
1/31/2017 9:00		
1/31/2017 11:00	2.00	Data communications issue.
2/8/2017 9:00		
2/8/2017 11:00	2.00	Maintenance completed on sample line.
Total	10.00	
e) Unknown causes		
	0.00	
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR
MODEL: Fuel Gas Flow Rate/FG H2S CEM
MFR:

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM:
EQUI1

EMISSION LIMIT AND AVERAGE TIME:
64.08 lb SO2/hr - 3 hour rolling average
0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Alkylation
Heater 28-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI173, STRU47, COMG20

NOTE: There was zero fuel oil runtime during the quarter.

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Fuel Oil
2160	2160	0

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	9.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	9.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.42%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP007, EQUI1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP007, EQUI1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 28-B-1 (EQUI1, GP007)

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 28-B-1 (EQUI1, GP007)

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX NOx CO CO2 O2 TRS H2S HCL (Opacity)

Other: Metal HAP per MACT Subpart UUU

REPORTING QUARTER: First, 2017

MONITOR MODEL: 440

MFR: Thermo Electron Corporation

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMITS AND AVERAGING TIME: 30% opacity; except for one six minute period in any one hour (1)

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: MN Rule 7011.1405, subp. 1, Item B; 40 CFR 63.1564

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is approximately a 30,500 bpd fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (MIN)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (MIN)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	648.00
d) Other known causes	18.00	d) Other known causes	8.50
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (MIN)	18.00	2 TOTAL DURATION (MIN)	656.50
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.01%	3 PERCENT OF TOTAL CEM DOWNTIME	0.51%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: (1) According to MN Rules 7011.1405, Subpt. 1, B and MACT II, an exceedance of this standard occurs whenever any one-hour period contains two or more 6-minute periods during which the average opacity exceeds 30%. As allowed in the above noted regulation, if two or more 6-minute average is exceeded in any one hour, it is reported in the summary at the front of this report.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Opacity

DATE/TIME	TOTAL DURATION (MIN)	MAX. OPACITY (%) # of 6 min periods	MAX. OPACITY (%) Max Opacity (%)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
1/1/2017				
4/1/2017				
				No excess emissions.
total	0.00	0		
b) Control equipment				
1/1/2017				
4/1/2017				No excess emissions.
total	0.00	0		
c) Process problems				
1/1/2017				
4/1/2017				No excess emissions.
total	0.00	0		
d) Other known causes				
1/6/2017 15:12				
1/6/2017 15:30	18.00			Please see Incident A in the report summary.
total	18.00	0		
e) Unknown causes				
1/1/2017				
4/1/2017				No excess emissions.
total	0.00	0		
f) Soot blowing				
1/1/2017				
4/1/2017				No excess emissions.
total	0.00	0		
g) Fuel problems				
1/1/2017				
4/1/2017				No excess emissions.
total	0.00	0		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Opacity

DATE/TIME	TOTAL DURATION (MIN)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
1/1/2017 3/31/2017	546.0	Daily calibrations.
1/24/2017 13:00 1/24/2017 14:42	102.0	Quarterly audit.
Total	648.0	
d) Other known causes		
1/28/2017 0:30 1/28/2017 9:00	8.50	Communications issue. Missing data.
Total	8.50	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX NOx (CO) CO2 O2 TRS H2S HCL Opacity

Other: Organic HAP per MACT Subpart UUU

REPORTING QUARTER: First, 2017

MONITOR MODEL: Advance Optima (Uras 14) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 500 ppmvd - 1 hour average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: NSPS Subpart J - 40 CFR 60.103(a)

ASSOCIATED ITEMS: EQUI164, TREA17

40 CFR 63.1565(a)(1)(ii)

40 CFR 63, MACT Subpart UUU, Table 8, Option 2

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	3.00	d) Other known causes	15.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	3.00	2 TOTAL DURATION (HRS)	15.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.14%	3 PERCENT OF TOTAL CEM DOWNTIME	0.69%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section. During excess emission events, a value equal to 1.5 times the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration. See Excess Emissions Summary for greater detail.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: CO and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), hourly average Actual	Recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
1/1/2017				
4/1/2017		No excess emissions.		
Total	0.00			
b) Control equipment				
1/1/2017				
4/1/2017		No excess emissions.		
Total	0.00			
c) Process problems				
1/1/2017				
4/1/2017		No excess emissions.		
Total	0.00			
d) Other known causes				
1/6/2017 14:00		1221	690	Please see Incident A in the summary report.
1/6/2017 17:00	3.00			
Total	3.00			
e) Unknown causes				
1/1/2017				
4/1/2017		No excess emissions.		
Total	0.00			
f) Soot blowing				
1/1/2017				
4/1/2017		No excess emissions.		
Total	0.00			
g) Fuel problems				
1/1/2017				
4/1/2017		No excess emissions.		
Total	0.00			

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: CO and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/3/2017 16:00 1/3/2017 18:00	2.00	Communications issue.
1/12/2017 9:00 1/12/2017 13:00	4.00	Preventive maintenance.
1/28/2017 0:00 1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	15.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX (NOx) CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: Advance Optima (Uras UV) Gas Analyzer

MFR: ABB

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 90 ppmvd, O2 free - 7 day rolling average; 70 ppmvd, O2 free - 365 day rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: Consent Decree Effective 4/3/06

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY	7 Day	365 Day
1 DURATION OF EXCESS EMISSIONS (HRS)		
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY	
1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	15.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	15.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.69%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 7-day rolling avg	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 365-day rolling avg	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
b) Non-monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
c) QA calibration		
Total	0.00	See FCC CO CEM downtime.
d) Other known causes		
Total	15.00	See FCC CO CEM downtime.
e) Unknown causes		
Total	0.00	See FCC CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) SOX NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: Advance Optima (Limas UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME:
100 ppmvd, O2 free - 7 day rolling average
50 ppmvd, O2 free - 365 day rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: Consent Decree Effective 6/30/06

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit.
The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY	7 Day	365 Day
1 DURATION OF EXCESS EMISSIONS (HRS)		
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY	
1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	15.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	15.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.69%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (days)	MAX. CONCENTRATION (ppm), 7-day average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 365-day average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

a) Monitor malfunction

Total	0.00	See FCC CO CEM downtime.

b) Non-monitor malfunction

Total	0.00	See FCC CO CEM downtime.

c) QA calibration

Total	0.00	See FCC CO CEM downtime.

d) Other known causes

Total	15.00	See FCC CO CEM downtime.

e) Unknown causes

Total	0.00	See FCC CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) SOX NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: Advance Optima (Limas UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 793.65 lbs/hr - 3 hour rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	15.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	15.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.69%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lbs/hr)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
NOTE: CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm		
a) Monitor malfunction		
Total	0.00	See FCC SO2 ppm CEM downtime.
b) Non-monitor malfunction		
Total	0.00	See FCC SO2 ppm CEM downtime.
c) QA calibration		
Total	0.00	See FCC SO2 ppm CEM downtime.
d) Other known causes		
Total	15.00	See FCC SO2 ppm CEM downtime.
e) Unknown causes		
Total	0.00	See FCC SO2 ppm CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (SOX) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: Advance Optima (Limas UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 9.8 lb SOx/1000 lb coke burn - 7 day rolling avg

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: Consent Decree, Appendix I, and NSPS 60.104(b)(2), 60.104(c)

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	15.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	15.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.69%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Lb SOX

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb Sox/ton), hourly average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Lb SOX

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

a) Monitor malfunction

Total	0.00	See FCC NOx or CO CEM downtime.

b) Non-monitor malfunction

Total	0.00	See FCC Nox or CO CEM downtime.

c) QA calibration

Total	0.00	See FCC NOx or CO CEM downtime.

d) Other known causes

Total	15.00	See FCC Nox or CO CEM downtime.

e) Unknown causes

Total	0.00	See FCC NOx or CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI3

EMISSION LIMITS AND AVERAGING TIME: 48.60 lb SO2/hr - 3 hour rolling average; 0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): No. 2 Crude Vacuum Heater 5-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG20, EQUI163, EQUI175, EQUI206, STRU70, COMG20

TOTAL OPERATING HOURS OF EMISSION UNIT:	Total	Fuel Gas	Fuel Oil
	2160	2160	0

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	9.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	9.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.42%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 5-B-1

POLLUTANT MONITORED: SO2 lb/hr - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 5-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 5-B-1, **fuel gas** flow meter

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 5-B-1

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: First, 2017

MONITOR
MODEL: Advance Optima Limas 11
MFR: ABB

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:
0.05 lbs/mmbtu - 12 month rolling average
0.14 lbs/mmbtu - 3 hour rolling average

EMISSION SUBJECT ITEM: EQUI4

EMISSION BASIS:
BACT PSD, 40CFR 52.21, Minn. R. 7007.3000

EMISSION UNIT(S): Heater 2-B-3

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI176, EQUI296, STRU15

TOTAL OPERATING HOURS
OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	12 mo	3 hr
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	11.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	12.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.56%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: NOx lb/mmbtu (12 month rolling avg) and O2

DATE/TIME	DURATION	CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: **NOx lb/mmbtu (3 hr rolling avg) and O2**

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lbs/mmbtu)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
	0.00	
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
1/9/2017 11:00		
1/9/2017 12:00	1.00	Quarterly calibration gas audit.
	1.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
3/21/2017 13:00		
3/21/2017 15:00	2.00	Preventive maintenance followed by calibration and validation.
	11.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI4

EMISSION LIMITS AND AVERAGING TIME:
34.0 lb SO2/hr - 3 hour rolling average
0.2834 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): No. 2 Crude Charge Heater
2-B-3

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI176, EQUI296, STRU15

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Natural Gas
2160	2160	2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas	Natural Gas
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	9.00	9.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	9.00	9.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.42%	0.42%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3

POLLUTANT MONITORED: SO2 lb/hr - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3

POLLUTANT MONITORED: SO2 lb/mmbtu - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3, Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3, Natural Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI5

EMISSION LIMITS AND AVERAGING TIME: 1.2 lb SO2/hr - 3 hr rolling average; 0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): No. 1 Crude Vacuum heater 1-B-5

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI178, STRU10

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00		
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	9.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	9.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.42%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb/hr, 3-hour avg)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb/mmBtu)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5, **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00 1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI6

EMISSION LIMIT AND AVERAGE TIME:
52.20 lb SO2/hr - 3 hour rolling average
0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Crude Charge Heater
Heater 1-B-7

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI182, EQUI183, STRU69

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Fuel Oil
2160	2160	0

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	10.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	10.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.46%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI6

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI6

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 1-B-7

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
3/9/2017 9:00		
3/9/2017 10:00	1.00	Communications issue. Missing data.
Total	10.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 1-B-7

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI7

EMISSION LIMITS AND AVERAGING TIME:
1.41 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Distillate Unifiner
29-B-1, 29-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI184, STRU68

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

Back to Su

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: Flow)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI8

EMISSION LIMITS AND AVERAGING TIME:
1.95 lb SO2/hr - 3 hr rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Naphtha Unifiner Heater 3-B-1, 3-B-2, 3-B-3

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI185, STRU19

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1, 3-B-2, 3-B-3

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1, 3-B-2, 3-B-3

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1,2,3 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI9

EMISSION LIMITS AND AVERAGING TIME:
1.95 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Platformer Charge Heater 3-B-4

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI186, STRU67

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00		
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: Flow)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI10

EMISSION LIMITS AND AVERAGING TIME:
1.68 lb SO2/hr - 3 hr rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Platformer interheater #1
3-B-7

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI187, STRU66

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI11

EMISSION LIMITS AND AVERAGING TIME: 1.08 lb SO2/hr - 3 hour rolling average; 0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Platformer Interheater #2, 3-B-8

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI188, STRU65

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI12

EMISSION LIMIT AND AVERAGE TIME: 0.76 lb SO2/hr - 3 hour rolling average; 0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Desulfurizer Heater; Heater 34-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI189, MR029, STRU64

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	lb/hr	lb/mmtbu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI13

EMISSION LIMIT AND AVERAGE TIME:
76.50 lb SO2/hr - 3 hour rolling average
0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Hot Oil Heater
Heater 34-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI190, EQUI191, STRU64

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Fuel Oil
2160	2160	0

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS)

1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: First, 2017

MONITOR

MFR: ABB

Model: Advance Optima Limas 11

FACILITY:

St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:

0.050 lbs/mmbtu - 365 day rolling average

1st 365-d rolling avg. effective 10/17/08

EMISSION SUBJECT ITEM: EQUI14

EMISSION BASIS:

Consent Decree

EMISSION UNIT(S): Heater 32-B-1

ASSOCIATED ITEMS:

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY	365 day	B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	2.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	2.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.09%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1 (EQUI14)

POLLUTANT MONITORED: NOx (365 day rolling avg) and O2

DATE/TIME	DURATION	CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1 (EQUI14)

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
1/9/2017 11:00		
1/9/2017 13:00	2.00	Quarterly calibration gas audit.
Total	2.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI14

EMISSION LIMIT AND AVERAGE TIME:
2.97 lb SO2/hr - 3 hour rolling average
0.025 lb SO2/mmbtu - 3 hour rolling average
EMISSION BASIS: SIP for SO2 NAAQS (Effective 9-10-2009)

EMISSION UNIT(S): HDH Heater
32-B-1

ASSOCIATED ITEMS:
COMG7, COMG14, EQUI163, EQUI192, STRU63

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	2.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	2.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.09%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 32-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 32-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
3/29/2017 8:00 – 3/29/2017 10:00	2.00	Annual meter calibration.
Total	2.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI15

EMISSION LIMIT AND AVERAGE TIME:
36.0 lb SO2/hr - 3 hour rolling average
0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Dehex Reboiler Heater
Heater 10-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI193, EQUI194, STRU9

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Fuel Oil
2160	2160	0

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS)

1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other: SO2 also a surrogate for MACT Subpart UUU HAP Emissions

REPORTING QUARTER: First, 2017

MONITOR MODEL: Advance Limas 11 SO2 / Magnos 106 - O2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI0000000016

EMISSION LIMIT AND AVERAGE TIME: 250 ppm SO2 - 12 hour rolling average

EMISSION UNIT(S): #2 SRU/SCOT unit

EMISSION BASIS: 40 CFR 60 NSPS Subpart J

ASSOCIATED ITEMS: TREA12, COMG8, EQUI166, EQUI167, STRU81

40 CFR 63.1568 Table 29 Opt 1a MACT Subpart UUU

PROCESS UNIT DESCRIPTION: EQUI16 is a Claus Sulfur Recovery Unit with a Tail Gas Treating Unit. The train includes the SRU Incinerator. The sulfur unit is designed to process 50 LTPD.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY		C. SRU BYPASS INFORMATION	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF BYPASS	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00	a) Process Problems	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	c) QA calibration	1.00	c) Unknown causes	0.00
d) Other known causes	0.00	d) Other known causes	12.00		
e) Unknown causes	0.00	e) Unknown causes	0.00	2 TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00			3 PERCENT OF TOTAL OPERATION HOURS	0.00%
g) Fuel problems	0.00				
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	13.00		
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.60%		

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section.
During excess emission events, a value equal to 1.5x the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (ppm)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (ppm, 12-hr average) and recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
d) Other known causes			
		No excess emissions.	
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
1/10/17 13:00		
1/10/17 14:00	1.00	Quarterly CGA.
Total	1.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
2/28/17 13:00		
2/28/17 15:00	2.00	Preventive maintenance followed by calibration and validation.
3/26/2017 8:00		
3/26/2017 9:00	1.00	Maintenance completed on sample system followed by calibration and validation.
Total	12.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
SRU BYPASS INFORMATION

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: Bypass (Acid gas)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Process problems		
1/1/2017		
4/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	
b) Other known causes		
1/1/2017		
4/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	
b) Unknown causes		
1/1/2017		
4/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: Advance Limas 11 SO2 / Magnos 106 - O2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI16

EMISSION LIMIT AND AVERAGE TIME: 45.0 lb SO2/hr - 1 hour average; 15.0 lb SO2/hr - 3 hour rolling average

EMISSION UNIT(S): #2 SRU/SCOT unit

EMISSION BASIS: MN Rule 7009.0020 - AAQS/SIP

ASSOCIATED ITEMS: TREA12, COMG8, EQUI166, EQUI167, STRU14

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	1 hr	3 hr
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	12.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	13.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.60%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:

lb/hr SO2 CEM downtime same as reported for #2 SRU/SCOT (EU 019) SO2 ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 1-hr average) and ppm recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
d) Other known causes			
	0.00	No excess emissions.	
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
		SO2 lb/hr downtime same as reported for #2 SRU/SCOT (EU 019) SO2 ppm
a) Monitor malfunction		
Total	0.00	See #2 SCOT ppm page for details
b) Non-monitor malfunction		
Total	0.00	See #2 SCOT ppm page for details
c) QA calibration		
Total	1.00	See #2 SCOT ppm page for details
d) Other known causes		
Total	12.00	See #2 SCOT ppm page for details
e) Unknown causes		
Total	0.00	See #2 SCOT ppm page for details

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI17

EMISSION LIMITS AND AVERAGING TIME:
1.70 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Guard Case Reactor Heater
36-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI199, STRU62

TOTAL OPERATING HOURS OF EMISSION UNIT: 2072

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI18

EMISSION LIMITS AND AVERAGING TIME:
2.10 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Reactor Charge Heater
36-B-2,3,4

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI200, STRU12

TOTAL OPERATING HOURS OF EMISSION UNIT: 2067

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI19

EMISSION LIMITS AND AVERAGING TIME:
0.63 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Reactor Charge Heater
36-B-6E

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI201, STRU80

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	1.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.05%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6E

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6E

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-6E **Fuel Gas Flow Rate**

POLLUTANT MONITORED: S02

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
2/15/2017 8:00		
2/15/2017 9:00	1.00	Annual meter calibration.
Total	1.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI20

EMISSION LIMITS AND AVERAGING TIME:
1.05 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Reactor Charge Heaters
36-B-6W

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI202, STRU79

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	1.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.05%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
2/15/2017 10:00		
2/15/2017 11:00	1.00	Annual meter calibration.
Total	1.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI21

EMISSION LIMITS AND AVERAGING TIME:
1.38 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Reactor Charge Heater
37-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA20, TREA21, COMG7, COMG8, EQUI163, EQUI203, STRU89

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

Back to Su

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: _____)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR: _____

EMISSION SUBJECT ITEM: EQUI26

EMISSION LIMITS AND AVERAGING TIME: 0.78 lb SO2/hr - 3 hour rolling average; 0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Product Stripper Reboiler 37-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA22, TREA23, COMG7, COMG8, EQUI163, EQUI204, STRU88

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: _____

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE: _____

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: COM0000000026, , EQUI24

EMISSION LIMIT AND AVERAGE TIME:
3.48 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Hydrogen Plant Heaters
38-B-1, 38-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA16, TREA11, , EQUI24, EQUI163, EQUI208, EQUI205, EQUI162, STRU87

OPERATING HOURS OF EMISSION UNIT:

Total	NSP Gas	PSA Gas
2160	2160	2160

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	lb/mmbtu	lb/hr
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Nat Gas	PSA Gas
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017		No excess emissions.	
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: Nat Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: PSA Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: TOC

REPORTING QUARTER: First, 2017

MONITOR
MODEL: Polytron IR Ex HC
MFR: Drager, Inc.

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:
10 mg TOC/liter of gasoline loaded (6 hour avg)
0.74% - CEM limit established by stack test as surrogate for 10 mg/L

EMISSION SUBJECT ITEM: EQUI0000000028

EMISSION BASIS:
40 CFR 63.422(b) NESHAP Subpart CC

EMISSION UNIT(S): Light oil loadrack
Vapor Recovery Unit

ASSOCIATED ITEMS: TREA18, TREA25, EQUI168, STRU31, STRU016

TOTAL OPERATING HOURS
OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	1.00
d) Other known causes	0.00	d) Other known causes	6.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	7.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.32%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack VRU

POLLUTANT MONITORED: TOC

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack VRU

POLLUTANT MONITORED: TOC

DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
1/17/2017 14:00		
1/17/2017 15:00	1.00	Quarterly calibration gas audit.
Total	1.00	
d) Other known causes		
3/28/2017 8:00		
3/28/2017 14:00	6.00	Analyzer replaced.
	6.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity

Other: (Temperature)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Thermocouple

FACILITY: St. Paul Park Refining Co. LLC

MFR: NA

EMISSION SUBJECT ITEM: COM0000000028 Unit Startup - 8/6/08

EMISSION LIMIT AND AVERAGE TIME: > 215°F - 3 hour rolling average

EMISSION BASIS: Title V Permit

EMISSION UNIT(S): Light oil loadrack Permanent Vapor Combustor Unit (PVCU)

ASSOCIATED ITEMS: TREA26, EQUI28, EQUI41, STRU32

TOTAL OPERATING HOURS OF EMISSION UNIT: 1416

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack Process Vapor Burner (P

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN.TEMPERATURE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack - PVB

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) (NOx) CO CO2 O2 TRS H2S HCL Opacity Other

Other: This report addresses Flare SARA reportable emissions, pilot monitoring, pilot flame outages, and SO2 monitoring.

REPORTING QUARTER: First, 2017

MONITOR

MODEL SOLA II Dual Range

FACILITY: St. Paul Park Refining Co. LLC

MFR: Thermo Scientific

EMISSION LIMIT AND AVERAGE TIME:

EMISSION SUBJECT ITEM: TREA13

EMISSION UNIT(S): TREA13 Refinery flare stack

EMISSION BASIS: 40 CFR 63 NESHAP Subpart CC, Subpart Ja

ASSOCIATED ITEMS: FUGI73

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY (Scanner)		C. CEM PERFORMANCE SUMMARY			
1 DURATION OF SARA REPORTABLE EMISSIONS (HRS)	SO2	NOx	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		DURATION OF PILOT DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00	a) Monitor malfunction	0.00	a) Pilot malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunctio	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00	c) QA calibration	2.00	c) Unknown causes	0.00
d) Other known causes	0.00	0.00	d) Other known causes	1.67	d) Other known causes	38.00		
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00	e) Unknown causes	0.00	TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00	0.00					PERCENT OF TOTAL	
g) Fuel problems	0.00	0.00	2 TOTAL DURATION (HRS)	1.67	2 TOTAL DURATION (HRS)	40.00	PILOT DOWNTIME	0.00%
2 TOTAL DURATION (HRS)	0.00	0.00	3 PERCENT OF TOTAL		3 PERCENT OF TOTAL			
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	CEM DOWNTIME	0.08%	CEM DOWNTIME	1.85%		

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of SARA Reportable Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

SARA Reportable Emissions Report - SO2 (i.e., > 500 lbs)

REPORTING QUARTER: First, 2017

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	APPROX. SO2 EMITTED (LBS)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			
Total	0.00		

SARA Reportable Emissions Report - NO2 (i.e., > 1000 lbs)

REPORTING QUARTER: First, 2017

AQD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: NA

DATE/TIME	TOTAL DURATION (HRS)	APPROX. NO2 EMITTED (LBS)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017

AQD FILE #. #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
2/6/2017 13:00		
2/6/2017 15:00	2.00	Quarterly calibration gas audit.
Total	2.00	
d) Other known causes		
1/5/2017 11:00		
1/5/2017 13:00	2.00	Low air pressure which actuates valves and resulted in an analyzer fault.
2/1/17 13:00		
2/1/17 14:00	1.00	Preventive maintenance completed to replace rotors.
2/23/2017 6:00		
2/24/2017 17:00	35.00	Failed calibration due to plugging. Maintenance completed on analyzer w/ calibration/validation.
Total	38.00	
e) Unknown causes		
Total	0.00	

FLARE SCANNER
DOWNTIME REPORT

REPORTING QUARTER: First, 2017

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: Flame Presence (Non-Pollutant)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/6/2017 4:04		
1/6/2017 4:08	0.07	IR camera data acquisition error but at least one thermocouple greater than 1000 degrees indicates flame
2/21/2017 6:55		
2/21/2017 8:31	1.60	IR camera data acquisition error but at least one thermocouple greater than 1000 degrees indicates flame
Total	1.67	
e) Unknown causes		
Total	0.00	

FLARE PILOT
DOWNTIME REPORT

REPORTING QUARTER: First, 2017

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA0000000013

POLLUTANT MONITORED: Flame Presence (Non-Pollutant)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Pilot malfunction		
1/1/2017		
4/1/2017		
Total	0.00	
b) Other known causes		
1/1/2017		
4/1/2017		
Total	0.00	
c) Unknown causes		
1/1/2017		
4/1/2017		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity
Other: (Temp)

REPORTING QUARTER: First, 2017

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: TREA5

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer (SBC Vent Gas / TO Temperature)

ASSOCIATED ITEMS: EQUI209, STRU22, SV065

MONITOR MODEL: 002A GC

MFR: ABB

EMISSION LIMIT AND AVERAGE TIME:
150 ppm H2S - 365 day rolling average
> 1400 DEGF - 3 hour rolling average

EMISSION BASIS:
40 CFR 52.21
MN Rule 7007.0800, Subp. 2

TOTAL OPERATING HOURS OF EMISSION UNIT: 2065

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	H2S	Temperature
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	H2S	Temperature
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014.
SBC's are no longer in-use.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	**MAX. CONC. (150 ppm, 365 day average)**	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	**MIN. TEMP. (°F, 3-hr average)**	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (Temp)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Thermocouple

MFR:

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: COMG13

EMISSION LIMIT AND AVERAGE TIME: > 1400 DEGF - 3 hour rolling average

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer (N_2 Vent Gas / TO Temperature)

EMISSION BASIS: 40 CFR 61.349(a)(2) MN Rule 7011.9930, Sub.E

ASSOCIATED ITEMS: TREA5, EQUI209, STRU22, SV065

TOTAL OPERATING HOURS OF EMISSION UNIT: 2065

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	**Temperature**	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	**Temperature**
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average) CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown		
1/1/2017		
4/1/2017		No excess emissions.
Total	0.00	
b) Control equipment		
1/1/2017		
4/1/2017		No excess emissions.
Total	0.00	
c) Process problems		
1/1/2017		
4/1/2017		No excess emissions.
Total	0.00	
d) Other known causes		
1/1/2017		
4/1/2017		No excess emissions.
Total	0.00	
e) Unknown causes		
1/1/2017		
4/1/2017		No excess emissions.
Total	0.00	
f) Soot blowing		
1/1/2017		
4/1/2017		No excess emissions.
Total	0.00	
g) Fuel problems		
1/1/2017		
4/1/2017		No excess emissions.
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other: SO2 also a surrogate for MACT Subpart UUU HAP Emissions

REPORTING QUARTER: First, 2017

MONITOR MODEL: Advance Optima, Limas 11, NDUV

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI33

EMISSION LIMIT AND AVERAGE TIME: 250 ppmd, O2 free - 12 hour rolling average

EMISSION UNIT(S): #3 SRU/SCOT unit
Unit Startup - 11/16/2004, CEM Startup 11/16/04

EMISSION BASIS: 40 CFR 60 NSPS Subpart J
40 CFR 63.1568 Table 29 Opt 1a MACT Subpart UUU

ASSOCIATED ITEMS: TREA4, COMG7, EQUI163, EQUI296, EQUI210, EQUI211, STRU6

PROCESS UNIT DESCRIPTIO: EU0083 is a 4-Stage Claus Sulfur Recovery Unit with a tail Gas Treating Unit. The train includes the SRU incinerator. The sulfur unit is designed to process 50 LTPD.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY		C. SRU BYPASS INFORMATION	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF BYPASS	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00	a) Process Problems	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	c) QA calibration	1.00	c) Unknown causes	0.00
d) Other known causes	0.00	d) Other known causes	9.00		
e) Unknown causes	0.00	e) Unknown causes	0.00	2 TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00			3 PERCENT OF TOTAL OPERATION HOURS	0.00%
g) Fuel problems	0.00				
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	10.00		
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.46%		
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.					

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section.
During excess emission events, a value equal to 1.5 times the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (ppm)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 12-hr average) Actual	Recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
1/1/2017				
4/1/2017				No excess emissions.
Total	0.00			
b) Control equipment				
1/1/2017				
4/1/2017				No excess emissions.
Total	0.00			
c) Process problems				
1/1/2017				
4/1/2017				
	0.00			No excess emissions.
Total	0.00			
d) Other known causes				
1/1/2017				
4/1/2017				No excess emissions.
Total	0.00			
e) Unknown causes				
1/1/2017				
4/1/2017				No excess emissions.
Total	0.00			
f) Soot blowing				
1/1/2017				
4/1/2017				No excess emissions.
Total	0.00			
g) Fuel problems				
1/1/2017				
4/1/2017				No excess emissions.
Total	0.00			

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
1/10/17 13:00		
1/10/17 14:00	1.00	Quarterly calibration gas audit.
Total	1.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
SRU Bypass Information

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: Bypass (Acid gas)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Process problems		
1/1/2017		
4/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	
b) Other known causes		
1/1/2017		
4/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	
b) Unknown causes		
1/1/2017		
4/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity
Other: _____

REPORTING QUARTER: First, 2017

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI33

EMISSION UNIT(S): #3 SRU/SCOT unit
Unit Startup - 11/16/2004

ASSOCIATED ITEMS: TREA4, COMG7, EQUI163, EQUI296, EQUI210, EQUI211, STRU6

MONITOR
MODEL: Advance Optima, Limas 11, NDUV

MFR: ABB

EMISSION LIMIT AND AVERAGE TIME:
45.0 lb SO2/hr - 1 hour average
15.0 lb SO2/hr - 3 hour rolling average

EMISSION BASIS: MN Rule 7009.0020 - AAQS/SIP

TOTAL OPERATING HOURS
OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY

	1 hr	3-hr
1 DURATION OF EXCESS EMISSIONS (HRS)		
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	9.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	10.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.46%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
#3 SRU/SCOT lb SO2/hr CEM downtime is the same as reported for #3 SRU/SCOT SO2 ppm.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE: _____

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr) - 45 lb/hr, 1-hr average

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 1-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr) - 15 lb/hr, 3-hr average

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
	NOTE:	**SO2 lb/hr downtime same as reported for #3 SRU/SCOT SO2 ppm**
a) Monitor malfunction		
Total	0.00	See #3 SCOT ppm page for details
b) Non-monitor malfunction		
Total	0.00	See #3 SCOT ppm page for details
c) QA calibration		
Total	1.00	See #3 SCOT ppm page for details
d) Other known causes		
Total	9.00	See #3 SCOT ppm page for details
e) Unknown causes		
Total	0.00	See #3 SCOT ppm page for details

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (Temperature)

REPORTING QUARTER: First, 2017

MONITOR MODEL: NA

FACILITY: St. Paul Park Refining Co. LLC

MFR: NA

EMISSION SUBJECT ITEM: EU 088
Unit Startup - 10/20/2008

EMISSION LIMIT AND AVERAGE TIME: > 550 Deg F - 3 hour rolling average

EMISSION UNIT(S): NP VEPR Phase 1

EMISSION BASIS: Title V Permit
MN R. 7007.0800

ASSOCIATED ITEMS: TREA10, TREA7, STRU25

TOTAL OPERATING HOURS OF EMISSION UNIT: 0

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 1

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 1

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (Temperature)

REPORTING QUARTER: First, 2017

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EU 089

EMISSION UNIT(S): NP VEPR Phase 2

ASSOCIATED ITEMS: TREA6, TREA8, STRU29

MONITOR MODEL: NA

MFR: NA

EMISSION LIMIT AND AVERAGE TIME: > 550 Deg F - 3 hour rolling average

EMISSION BASIS: Title V Permit
MN R. 7007.0800

TOTAL OPERATING HOURS OF EMISSION UNIT: 0

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 2

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 2

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

MONITOR: Syscon/Uras 26 - NOx
MODEL: Magnos 206 - O_2

REPORTING QUARTER: First, 2017

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION LIMIT AND AVERAGE TIME: 0.20 lb/mmbtu - 30 Day rolling average

EMISSION SUBJECT ITEM: EQUI42

EMISSION UNIT(S): Boiler 7
Boiler 16-B-7

EMISSION BASIS: NSPS Db

ASSOCIATED ITEMS: COMG27 (Boilers 7&8), EQUI0212, EQUI214, STRU44

OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu (30 Day)	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
1 a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	9.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	9.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.42%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-7

POLLUTANT MONITORED: NOx (lbs/mmbtu)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: FLOW)

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI42

EMISSION LIMIT AND AVERAGE TIME: 0.025 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Boiler 7
Boiler 16-B-7

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG27, EQUI163, STRU44

OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING	
1	lb/mmbtu	SOURCE OPERATION (HRS)	Fuel Gas
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	9.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	9.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.42%
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.			

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-7

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: Syscon/Uras 26 - NOx; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI43

EMISSION LIMIT AND AVERAGE TIME: 0.20 lb/mmbtu - 30 Day rolling average

EMISSION UNIT(S): Boiler 8; Boiler 16-B-8

EMISSION BASIS: NSPS Db

ASSOCIATED ITEMS: COMG27 (Boilers 7&8), EQUI215, EQUI217, STRU45

OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu (30-Day)	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
1 a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	9.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	9.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.42%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-8

POLLUTANT MONITORED: NOx (lbs/mmbtu)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) FLOW

REPORTING QUARTER: First, 2017

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION LIMIT AND AVERAGE TIME: 0.025 lb SO2/mmbtu - 3 hour rolling average

EMISSION SUBJECT ITEM: EQUI43

EMISSION UNIT(S): Boiler 8
Boiler 16-B-8

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG27, EQUI163, STRU44

OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	9.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	9.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.42%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-8

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: ABB Limas11 - NOx; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI44

EMISSION LIMIT AND AVERAGE TIME: 40 ppmvd at 0% O2

EMISSION UNIT(S): FCC Charge Heater (8-B-1); Unit Startup - 5/7/2012

EMISSION BASIS: NSPS Ja

ASSOCIATED ITEMS: COMG7, EQUI163, MR070, MR071; STRU34

NOTE: New MR numbers MR070 and MR071 have been selected for the new 8-B-1 heater. These numbers are not yet entered into the Title V permit.

OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	**ppmvd (30-Day)**	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	**Fuel Gas**
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	1.00
d) Other known causes	0.00	d) Other known causes	9.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	10.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.46%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EU 094

POLLUTANT MONITORED: NOx (ppmvd @ 0% O2)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EU 094

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
1/11/2017 14:00		
1/11/2017 15:00	1.00	Quaterly calibration gas audit.
Total	1.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: FLOW)

REPORTING QUARTER: First, 2017

MONITOR
MODEL: MR074 (fuel gas); MR 075 (pilot gas)
MFR: Honeywell (fuel gas)

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:
1.75 lb SO2/mmbtu - 3 hour rolling average

EMISSION SUBJECT ITEM: EQUI44

EMISSION UNIT(S): FCC Charge Heater (8-B-1)
Unit Startup - 5/7/2012

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163
STRU34

NOTE: New MR numbers MR074 and MR075 have been selected for the new 8-B-1 heater fuel gas and pilot flow meters. These numbers are not yet entered into the Title V permit.

OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	9.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	9.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.42%
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.			

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI44

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 8-B-1 (EQUI44)

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx (CO) CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: First, 2017

MONITOR MODEL: Syscon/Uras 26 - CO; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: COMG27

EMISSION LIMIT AND AVERAGE TIME: 95 Tons Per Year - 12 month rolling sum (for Boilers 7 & 8 combined as GP 032)

EMISSION UNIT(S): COMG27 Boilers 16-B-7 and 16-B-8

EMISSION BASIS: TV Air Permit - Limit to avoid NSR 40 CFR 52.21, Minn.R.7007.3000

ASSOCIATED ITEMS: EQUI42, EQUI43, EQUI213, EQUI214, EQUI216, EQUI217, STRU44, STRU45

OPERATING HOURS OF EMISSION UNIT:	Boiler 7	Boiler 8
	2160	2160

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS)

1	Ton/Year
a) Startup/Shutdown	0.00
b) Control equipment	0.00
c) Process problems	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
f) Soot blowing	0.00
g) Fuel problems	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Boiler 7	Boiler 8
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	9.00	9.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	9.00	9.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.42%	0.42%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: CEMS downtime for the GP 032 combined emission limit is reported if individually or for both CEMS for Boiler 7 and Boiler 8 are down. These pages are applicable only for the combined CO limit.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP 032 - 16-B-7 and 16-B-8

POLLUTANT MONITORED: CO Ton/Year

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: CO

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: CO

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
1/28/2017 0:00		
1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: First, 2017

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: COMG27

EMISSION UNIT(S): COMG27
Boilers 16-B-7 and 16-B-8

ASSOCIATED ITEMS: EQUI42, EQUI43, EQUI212, EQUI214, EQUI215, EQUI217, STRU44, STRU45

MONITOR MODEL: Syscon/Uras 26 - NOx; Magnos 206 - O_2

MFR: ABB

EMISSION LIMIT AND AVERAGE TIME: 38 Tons Per Year - 12 month rolling sum (for Boilers 7 & 8 combined as GP 032)

EMISSION BASIS: TV Air Permit - Limit to avoid NSR 40 CFR 52.21, Minn.R.7007.3000

OPERATING HOURS OF EMISSION UNIT:	Boiler 7	Boiler 8
	2160	2160

A. EMISSION DATA SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	ton/yr
a) Startup/Shutdown	0.00
b) Control equipment	0.00
c) Process problems	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
f) Soot blowing	0.00
g) Fuel problems	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%

B. CEM Performance Summary		
1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Boiler 7	Boiler 8
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	9.00	9.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	9.00	9.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.42%	0.42%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: CEMS downtime for the GP 032 combined emission limit is reported if individually or for both CEMS for Boiler 7 and Boiler 8 are down. These pages are applicable only for the combined NOx limit.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP 032 - 16-B-7 and 16-B-8

POLLUTANT MONITORED: NOx (Tons/Year)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

Note: NOx CEM downtime is the same downtime reported on the form for Boiler 7 for NOx ppm

a) Monitor malfunction

Total 0.00

b) Non-monitor malfunction

Total 0.00

c) QA calibration

Total 0.00

d) Other known causes

1/28/2017 0:00
1/28/2017 9:00 9.00 Communications issue. Missing data.

Total 9.00

e) Unknown causes

Total 0.00

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

Note: NOx CEM downtime is the same downtime reported on the form for Boiler 8 for NOx ppm

a) Monitor malfunction

Total	0.00

b) Non-monitor malfunction

Total	0.00

c) QA calibration

Total	0.00

d) Other known causes

1/28/2017 0:00 1/28/2017 9:00	9.00	Communications issue. Missing data.
Total	9.00	

e) Unknown causes

Total	0.00

AQD FILE #:

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity

Other: This report addresses Flare H2S emissions.

REPORTING QUARTER: First, 2017

MONITOR
MODEL: Maxum II
MFR: Siemens, Serial No. 001060

FACILITY: St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME: 162 ppm (3-hour rolling average)

EMISSION SUBJECT ITEM: TREA13

EMISSION UNIT(S): TREA13 Refinery flare stack

EMISSION BASIS: 40 CFR 63 NESHAP Subpart Ja

ASSOCIATED ITEMS: FUGI73

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY		
1 DURATION OF EXCESS EMISSIONS			1 DURATION OF CEM DOWNTIME		
EMISSIONS (HRS)	H2S		DURING SOURCE OPERATION (HRS)		
a) Startup/Shutdown	6.00		a) Monitor malfunction	0.00	
b) Control equipment	0.00		b) Non-monitor malfunction	0.00	
c) Process problems	0.00		c) QA calibration	0.00	
d) Other known causes	6.00		d) Other known causes	39.00	
e) Unknown causes	60.00		e) Unknown causes	0.00	
f) Soot blowing	0.00				
g) Fuel problems	0.00		2 TOTAL DURATION (HRS)	39.00	
2 TOTAL DURATION (HRS)	72		3 PERCENT OF TOTAL		
3 PERCENT OF TOTAL			CEM DOWNTIME	1.81%	
EXCESS EMISSIONS	3%				

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of SARA Reportable Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

SARA Reportable Emissions Report - H2S (i.e., > 162 ppm)

REPORTING QUARTER: First, 2017

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: NA

DATE/TIME	TOTAL DURATION (HRS)	MAX CONCENTRATION (ppm, 3-hour rolling avg.)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
2/6/2017 7:00			
2/6/2017 10:00	3.00	387	Please see Incident C in the summary report.
2/17/2017 12:00			
2/17/2017 15:00	3.00	545	Please see Incident C in the summary report.
Total	6.00		
b) Control equipment			
1/1/2017			
4/1/2017			
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			
Total	0.00		
d) Other known causes			
1/6/2017 16:00			
1/6/2017 19:00	3.00	688	Please see Incident A in the summary report.
2/7/2017 20:00			
2/7/2017 23:00	3.00	181	Please see Incident C in the summary report.
Total	6.00		
e) Unknown causes			
1/11/2017 7:00			
1/11/2017 10:00	3.00	283	Please see Incident B in the summary report.
2/8/2017 8:00			
2/10/2017 17:00	57.00	2471	Please see Incident D in the summary report.
Total	60.00		
f) Soot blowing			
1/1/2017			
4/1/2017			
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	ORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	Quarterly calibration gas audit.
d) Other known causes		
1/5/2017 11:00 1/5/2017 13:00	2.00	Low air pressure which actuates valves and resulted in an analyzer fault.
1/18/17 8:00 1/18/17 10:00	2.00	Maintenance - replacement of detectors.
2/23/2017 6:00 2/24/2017 17:00	35.00	Failed calibration due to plugging. Maintenance completed on analyzer w/ calibration/validation.
Total	39.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: First, 2017

MONITOR MODEL: DigitalFlow GF868

FACILITY: St. Paul Park Refining Co. LLC

MFR: General Electric

EMISSION SUBJECT ITEM: TREA13

WORK PRACTICE STANDARD AND AVERAGE TIME: 1.31 MMSCF/24-hr Rolling Avg.

EMISSION UNIT(S): TREA13 Refinery flare stack

EMISSION BASIS: 40 CFR 63 NESHAP Subpart Ja

ASSOCIATED ITEMS: FUGI73

OPERATING HOURS OF EMISSION UNIT: Total 2160

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	MMSCF/24-hr	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00		
b) Control equipment	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.			

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: MMBTU/24-hr Rolling Avg.

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
1/1/2017			
4/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2017 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: Flare Vent Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

Appendix A

AMP Monitoring Data

AMP Data - Sample Point #1 - C3/C4 Splitter Overhead (Unit 5008, Code 205) - 1st Quarter 2017

Must take at least one sample semi-annually with a minimum of three months between samples

Unit Name	Code Name	Sample ID	Sample Date	Sample Time	Total sulfur-Antek (ppmw)	Instrument ID	Vol H2S	Vol LPG	H2S Conc (ppmv)
FCC	C3/C4 SPLTR OVHD	S2154402.D	1/2/2017	4:30	1.24	Antek#2	0.9	575,259.305	1.5
FCC	C3/C4 SPLTR OVHD	S2154640.D	1/3/2017	4:30	1.16	Antek#2	0.8	575,259.338	1.4
FCC	C3/C4 SPLTR OVHD	S2154913.D	1/4/2017	4:30	0.44	Antek#1	0.3	575,259.635	0.5
FCC	C3/C4 SPLTR OVHD	S2155179.D	1/5/2017	4:30	0.89	Antek#2	0.6	575,259.449	1.1
FCC	C3/C4 SPLTR OVHD	S2155426.D	1/6/2017	4:30	0.69	Antek#2	0.5	575,259.532	0.9
FCC	C3/C4 SPLTR OVHD	S2156145.D	1/9/2017	4:30	0.64	Antek#1	0.5	575,259.552	0.8
FCC	C3/C4 SPLTR OVHD	S2156410.D	1/10/2017	4:30	0.65	Antek#1	0.5	575,259.548	0.8
FCC	C3/C4 SPLTR OVHD	S2156693.D	1/11/2017	4:30	0.97	Antek#2	0.7	575,259.416	1.2
FCC	C3/C4 SPLTR OVHD	S2156956.D	1/12/2017	4:30	0.68	Antek#2	0.5	575,259.536	0.8
FCC	C3/C4 SPLTR OVHD	S2157222.D	1/13/2017	4:30	0.96	Antek#2	0.7	575,259.420	1.2
FCC	C3/C4 SPLTR OVHD	S2157931.D	1/16/2017	4:30	0.71	Antek#2	0.5	575,259.523	0.9
FCC	C3/C4 SPLTR OVHD	S2158196.D	1/17/2017	4:30	0.74	Antek#2	0.5	575,259.511	0.9
FCC	C3/C4 SPLTR OVHD	S2158469.D	1/18/2017	4:30	0.73	Antek#2	0.5	575,259.515	0.9
FCC	C3/C4 SPLTR OVHD	S2158959.D	1/19/2017	11:08	0.67	Antek#2	0.5	575,259.540	0.8
FCC	C3/C4 SPLTR OVHD	S2159019.D	1/20/2017	4:30	0.51	Antek#2	0.4	575,259.606	0.6
FCC	C3/C4 SPLTR OVHD	S2159787.D	1/23/2017	4:30	0.39	Antek#2	0.3	575,259.656	0.5
FCC	C3/C4 SPLTR OVHD	S2160042.D	1/24/2017	4:30	0.34	Antek#1	0.2	575,259.676	0.4
FCC	C3/C4 SPLTR OVHD	S2160318.D	1/25/2017	4:30	0.35	Antek#2	0.3	575,259.672	0.4
FCC	C3/C4 SPLTR OVHD	S2160588.D	1/26/2017	4:30	0.61	Antek#2	0.4	575,259.565	0.8
FCC	C3/C4 SPLTR OVHD	S2160853.D	1/27/2017	4:30	0.36	Antek#1	0.3	575,259.668	0.4
FCC	C3/C4 SPLTR OVHD	S2161539.D	1/30/2017	4:30	0.33	Antek#1	0.2	575,259.680	0.4
FCC	C3/C4 SPLTR OVHD	S2161789.D	1/31/2017	4:30	0.44	Antek#2	0.3	575,259.635	0.5
FCC	C3/C4 SPLTR OVHD	S2162051.D	2/1/2017	4:30	0.3	Antek#1	0.2	575,259.693	0.4
FCC	C3/C4 SPLTR OVHD	S2162383.D	2/2/2017	4:30	0.4	Antek#2	0.3	575,259.651	0.5
FCC	C3/C4 SPLTR OVHD	S2162637.D	2/3/2017	4:30	0.38	Antek#1	0.3	575,259.660	0.5
FCC	C3/C4 SPLTR OVHD	S2163374.D	2/6/2017	4:30	0.48	Antek#2	0.3	575,259.618	0.6
FCC	C3/C4 SPLTR OVHD	S2163641.D	2/7/2017	4:30	0.49	Antek#1	0.4	575,259.614	0.6
FCC	C3/C4 SPLTR OVHD	S2163926.D	2/8/2017	4:30	0.8	Antek#2	0.6	575,259.486	1.0
FCC	C3/C4 SPLTR OVHD	S2164194.D	2/9/2017	4:30	1.01	Antek#1	0.7	575,259.399	1.3
FCC	C3/C4 SPLTR OVHD	S2164461.D	2/10/2017	4:30	0.39	Antek#1	0.3	575,259.656	0.5
FCC	C3/C4 SPLTR OVHD	S2165162.D	2/13/2017	4:30	0.44	Antek#2	0.3	575,259.635	0.5
FCC	C3/C4 SPLTR OVHD	S2165417.D	2/14/2017	4:30	0.71	Antek#2	0.5	575,259.523	0.9
FCC	C3/C4 SPLTR OVHD	S2165678.D	2/15/2017	4:30	0.53	Antek#1	0.4	575,259.598	0.7
FCC	C3/C4 SPLTR OVHD	S2165928.D	2/16/2017	4:30	0.56	Antek#2	0.4	575,259.585	0.7
FCC	C3/C4 SPLTR OVHD	S2166201.D	2/17/2017	4:30	0.5	Antek#1	0.4	575,259.610	0.6
FCC	C3/C4 SPLTR OVHD	S2166889.D	2/20/2017	4:30	0.38	Antek#2	0.3	575,259.660	0.5
FCC	C3/C4 SPLTR OVHD	S2167183.D	2/21/2017	4:30	0.46	Antek#2	0.3	575,259.627	0.6
FCC	C3/C4 SPLTR OVHD	S2167455.D	2/22/2017	4:30	0.38	Antek#2	0.3	575,259.660	0.5
FCC	C3/C4 SPLTR OVHD	S2167733.D	2/23/2017	4:30	0.36	Antek#1	0.3	575,259.668	0.4
FCC	C3/C4 SPLTR OVHD	S2168034.D	2/24/2017	4:30	0.49	Antek#1	0.4	575,259.614	0.6
FCC	C3/C4 SPLTR OVHD	S2169298.D	3/1/2017	4:30	0.52	Antek#2	0.4	575,259.602	0.6
FCC	C3/C4 SPLTR OVHD	S2169780.D	3/2/2017	14:01	0.56	Antek#1	0.4	575,259.585	0.7
FCC	C3/C4 SPLTR OVHD	S2169564.D	3/2/2017	4:30	0.66	Antek#1	0.5	575,259.544	0.8
FCC	C3/C4 SPLTR OVHD	S2169832.D	3/3/2017	4:30	0.4	Antek#2	0.3	575,259.651	0.5
FCC	C3/C4 SPLTR OVHD	S2170571.D	3/6/2017	4:30	0.42	Antek#1	0.3	575,259.643	0.5
FCC	C3/C4 SPLTR OVHD	S2170836.D	3/7/2017	4:30	0.29	Antek#1	0.2	575,259.697	0.4
FCC	C3/C4 SPLTR OVHD	S2171625.D	3/10/2017	4:30	0.33	Antek#2	0.2	575,259.680	0.4
FCC	C3/C4 SPLTR OVHD	S2172338.D	3/13/2017	4:30	0.4	Antek#1	0.3	575,259.651	0.5
FCC	C3/C4 SPLTR OVHD	S2172595.D	3/14/2017	4:30	0.3	Antek#1	0.2	575,259.693	0.4
FCC	C3/C4 SPLTR OVHD	S2172857.D	3/15/2017	4:30	0.64	Antek#2	0.5	575,259.552	0.8
FCC	C3/C4 SPLTR OVHD	S2173138.D	3/16/2017	4:30	0.43	Antek#2	0.3	575,259.639	0.5
FCC	C3/C4 SPLTR OVHD	S2173404.D	3/17/2017	4:30	0.41	Antek#2	0.3	575,259.647	0.5
FCC	C3/C4 SPLTR OVHD	S2174089.D	3/20/2017	4:30	0.29	Antek#2	0.2	575,259.697	0.4
FCC	C3/C4 SPLTR OVHD	S2174338.D	3/21/2017	4:30	0.48	Antek#2	0.3	575,259.618	0.6
FCC	C3/C4 SPLTR OVHD	S2174598.D	3/22/2017	4:30	0.31	Antek#1	0.2	575,259.689	0.4
FCC	C3/C4 SPLTR OVHD	S2174860.D	3/23/2017	4:30	0.38	Antek#2	0.3	575,259.660	0.5
FCC	C3/C4 SPLTR OVHD	S2175121.D	3/24/2017	4:30	0.44	Antek#2	0.3	575,259.635	0.5
FCC	C3/C4 SPLTR OVHD	S2175831.D	3/27/2017	4:30	0.36	Antek#2	0.3	575,259.668	0.4
FCC	C3/C4 SPLTR OVHD	S2176075.D	3/28/2017	4:30	0.4	Antek#2	0.3	575,259.651	0.5
FCC	C3/C4 SPLTR OVHD	S2176323.D	3/29/2017	4:30	0.42	Antek#2	0.3	575,259.643	0.5
FCC	C3/C4 SPLTR OVHD	S2176573.D	3/30/2017	4:30	0.4	Antek#2	0.3	575,259.651	0.5
FCC	C3/C4 SPLTR OVHD	S2176814.D	3/31/2017	4:30	0.4	Antek#2	0.3	575,259.660	0.5

AMP Data - Sample Point #2 - FCC Combined Propane - (Unit 5008, Code 042) - 1st Quarter 2017

Must take at least one sample semi-annually with a minimum of three months between samples

Unit Name	Code Name	Sample ID	Sample Date	Sample Time	sulfur-Antek (ppmw)	Instrument ID	Vol H2S	Vol LPG	H2S Conc (ppmv)
FCC	COMBINED PROPANE	S2154398.D	1/2/2017	4:30	2.6	Antek#2	1.9	554,652.831	3.4
FCC	COMBINED PROPANE	S2154635.D	1/3/2017	4:30	2.46	Antek#2	1.8	554,652.909	3.2
FCC	COMBINED PROPANE	S2154909.D	1/4/2017	4:30	2.53	Antek#1	1.8	554,652.870	3.3
FCC	COMBINED PROPANE	S2155174.D	1/5/2017	4:30	2.54	Antek#1	1.8	554,652.865	3.3
FCC	COMBINED PROPANE	S2155422.D	1/6/2017	4:30	2.42	Antek#2	1.7	554,652.931	3.1
FCC	COMBINED PROPANE	S2156141.D	1/9/2017	4:30	2.39	Antek#2	1.7	554,652.948	3.1
FCC	COMBINED PROPANE	S2156469.D	1/10/2017	10:30	1.66	Antek#1	1.2	554,653.353	2.1
FCC	COMBINED PROPANE	S2156405.D	1/10/2017	4:30	0	Antek#1	0.0	554,654.273	0.0
FCC	COMBINED PROPANE	S2156689.D	1/11/2017	4:30	2.01	Antek#1	1.4	554,653.159	2.6
FCC	COMBINED PROPANE	S2156951.D	1/12/2017	4:30	2.06	Antek#1	1.5	554,653.131	2.7
FCC	COMBINED PROPANE	S2157218.D	1/13/2017	4:30	1.27	Antek#2	0.9	554,653.569	1.6
FCC	COMBINED PROPANE	S2157927.D	1/16/2017	4:30	1.42	Antek#2	1.0	554,653.486	1.8
FCC	COMBINED PROPANE	S2158191.D	1/17/2017	4:30	1.77	Antek#2	1.3	554,653.292	2.3
FCC	COMBINED PROPANE	S2158465.D	1/18/2017	4:30	1.5	Antek#2	1.1	554,653.441	1.9
FCC	COMBINED PROPANE	S2158748.D	1/19/2017	4:30	9.94	Antek#1	7.1	554,648.760	12.9
FCC	COMBINED PROPANE	S2159015.D	1/20/2017	4:30	1.64	Antek#2	1.2	554,653.364	2.1
FCC	COMBINED PROPANE	S2159783.D	1/23/2017	4:30	1.89	Antek#1	1.4	554,653.225	2.4
FCC	COMBINED PROPANE	S2160037.D	1/24/2017	4:30	1.76	Antek#1	1.3	554,653.297	2.3
FCC	COMBINED PROPANE	S2160314.D	1/25/2017	4:30	1.45	Antek#1	1.0	554,653.469	1.9
FCC	COMBINED PROPANE	S2160583.D	1/26/2017	4:30	1.34	Antek#2	1.0	554,653.530	1.7
FCC	COMBINED PROPANE	S2160849.D	1/27/2017	4:30	1.42	Antek#2	1.0	554,653.486	1.8
FCC	COMBINED PROPANE	S2161535.D	1/30/2017	4:30	1.54	Antek#1	1.1	554,653.419	2.0
FCC	COMBINED PROPANE	S2161784.D	1/31/2017	4:30	1.48	Antek#1	1.1	554,653.453	1.9
FCC	COMBINED PROPANE	S2162047.D	2/1/2017	4:30	0.75	Antek#1	0.5	554,653.857	1.0
FCC	COMBINED PROPANE	S2162378.D	2/2/2017	4:30	0.18	Antek#1	0.1	554,654.174	0.2
FCC	COMBINED PROPANE	S2162633.D	2/3/2017	4:30	0.92	Antek#2	0.7	554,653.763	1.2
FCC	COMBINED PROPANE	S2163370.D	2/6/2017	4:30	1.18	Antek#2	0.8	554,653.619	1.5
FCC	COMBINED PROPANE	S2163636.D	2/7/2017	4:30	1.58	Antek#2	1.1	554,653.397	2.0
FCC	COMBINED PROPANE	S2163922.D	2/8/2017	4:30	1.68	Antek#1	1.2	554,653.342	2.2
FCC	COMBINED PROPANE	S2164189.D	2/9/2017	4:30	1.38	Antek#1	1.0	554,653.508	1.8
FCC	COMBINED PROPANE	S2164457.D	2/10/2017	4:30	1.41	Antek#1	1.0	554,653.491	1.8
FCC	COMBINED PROPANE	S2165158.D	2/13/2017	4:30	6.28	Antek#1	4.5	554,650.790	8.1
FCC	COMBINED PROPANE	S2165412.D	2/14/2017	4:30	36.57	Antek#1	26.3	554,633.990	47.3
FCC	COMBINED PROPANE	S2165674.D	2/15/2017	4:30	27.27	Antek#2	19.6	554,639.148	35.3
FCC	COMBINED PROPANE	S2165923.D	2/16/2017	4:30	36.02	Antek#1	25.9	554,634.295	46.6
FCC	COMBINED PROPANE	S2166197.D	2/17/2017	4:30	6.85	Antek#1	4.9	554,650.474	8.9
FCC	COMBINED PROPANE	S2166885.D	2/20/2017	4:30	1.89	Antek#2	1.4	554,653.225	2.4
FCC	COMBINED PROPANE	S2167178.D	2/21/2017	4:30	2.2	Antek#2	1.6	554,653.053	2.8
FCC	COMBINED PROPANE	S2167451.D	2/22/2017	4:30	3.33	Antek#1	2.4	554,652.426	4.3
FCC	COMBINED PROPANE	S2167728.D	2/23/2017	4:30	1.88	Antek#1	1.3	554,653.231	2.4
FCC	COMBINED PROPANE	S2168030.D	2/24/2017	4:30	7.02	Antek#2	5.0	554,650.380	9.1
FCC	COMBINED PROPANE	S2168720.D	2/27/2017	4:30	2.58	Antek#1	1.9	554,652.842	3.3
FCC	COMBINED PROPANE	S2168987.D	2/28/2017	4:30	1.95	Antek#2	1.4	554,653.192	2.5
FCC	COMBINED PROPANE	S2169294.D	3/1/2017	4:30	2.12	Antek#2	1.5	554,653.098	2.7
FCC	COMBINED PROPANE	S2169559.D	3/2/2017	4:30	2.98	Antek#1	2.1	554,652.621	3.9
FCC	COMBINED PROPANE	S2169828.D	3/3/2017	4:30	3.87	Antek#1	2.8	554,652.127	5.0
FCC	COMBINED PROPANE	S2170567.D	3/6/2017	4:30	2.33	Antek#2	1.7	554,652.981	3.0
FCC	COMBINED PROPANE	S2170831.D	3/7/2017	4:30	2.89	Antek#2	2.1	554,652.670	3.7
FCC	COMBINED PROPANE	S2171120.D	3/8/2017	4:30	2.69	Antek#2	1.9	554,652.781	3.5
FCC	COMBINED PROPANE	S2171375.D	3/9/2017	4:30	5.36	Antek#1	3.8	554,651.300	6.9
FCC	COMBINED PROPANE	S2171621.D	3/10/2017	4:30	2.17	Antek#2	1.6	554,653.070	2.8
FCC	COMBINED PROPANE	S2172334.D	3/13/2017	4:30	1.76	Antek#2	1.3	554,653.297	2.3
FCC	COMBINED PROPANE	S2172590.D	3/14/2017	4:30	1.91	Antek#2	1.4	554,653.214	2.5
FCC	COMBINED PROPANE	S2172853.D	3/15/2017	4:30	1.95	Antek#1	1.4	554,653.192	2.5
FCC	COMBINED PROPANE	S2173133.D	3/16/2017	4:30	1	Antek#1	0.7	554,653.719	1.3
FCC	COMBINED PROPANE	S2173400.D	3/17/2017	4:30	0.27	Antek#1	0.2	554,654.124	0.3
FCC	COMBINED PROPANE	S2174085.D	3/20/2017	4:30	2.33	Antek#1	1.7	554,652.981	3.0
FCC	COMBINED PROPANE	S2174333.D	3/21/2017	4:30	1.87	Antek#2	1.3	554,653.236	2.4
FCC	COMBINED PROPANE	S2174594.D	3/22/2017	4:30	1.5	Antek#2	1.1	554,653.441	1.9
FCC	COMBINED PROPANE	S2174855.D	3/23/2017	4:30	1.03	Antek#2	0.7	554,653.702	1.3
FCC	COMBINED PROPANE	S2175117.D	3/24/2017	4:30	1.32	Antek#1	0.9	554,653.541	1.7
FCC	COMBINED PROPANE	S2175827.D	3/27/2017	4:30	2.17	Antek#1	1.6	554,653.070	2.8
FCC	COMBINED PROPANE	S2176070.D	3/28/2017	4:30	2.81	Antek#2	2.0	554,652.715	3.6
FCC	COMBINED PROPANE	S2176319.D	3/29/2017	4:30	0.31	Antek#1	0.2	554,654.101	0.4
FCC	COMBINED PROPANE	S2176568.D	3/30/2017	4:30	2.68	Antek#1	1.9	554,652.787	3.5
FCC	COMBINED PROPANE	S2176810.D	3/31/2017	4:30	3.2	Antek#1	2.3	554,652.482	4.2

AMP Sample Point #3 - Isom Stripper Bottoms - (Unit 5035, Code 365) - 1st Quarter 2017

Must take at least one sample semi-annually with a minimum of three months between samples

Unit Name	Code Name	Sample ID	Sample Date	Sample Time	total sulfur (ppmw)	Vol H2S	Vol LPG	H2S Conc (ppmv)
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2154442_FID1_A.CDF	1/2/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2154671_FID1_A.CDF	1/3/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2154955_FID1_A.CDF	1/4/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2155208_FID1_A.CDF	1/5/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2155467_FID1_A.CDF	1/6/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2156185_FID1_A.CDF	1/9/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2156441_FID1_A.CDF	1/10/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2156735_FID1_A.CDF	1/11/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2156985_FID1_A.CDF	1/12/2017	4:30	0.0	0.0	347,822.004	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2157263_FID1_A.CDF	1/13/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2157971_FID1_A.CDF	1/16/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2158227_FID1_A.CDF	1/17/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2158511_FID1_A.CDF	1/18/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2158782_FID1_A.CDF	1/19/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2159060_FID1_A.CDF	1/20/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2160236_FID1_A.CDF	1/24/2017	10:42	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2160073_FID1_A.CDF	1/24/2017	4:30	0.4	0.3	347,821.854	0.9
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2160360_FID1_A.CDF	1/25/2017	4:30	0.1	0.1	347,821.981	0.2
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2160617_FID1_A.CDF	1/26/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2160894_FID1_A.CDF	1/27/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2161579_FID1_A.CDF	1/30/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2161820_FID1_A.CDF	1/31/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2162093_FID1_A.CDF	2/1/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2162412_FID1_A.CDF	2/2/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2162678_FID1_A.CDF	2/3/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2163414_FID1_A.CDF	2/6/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2163672_FID1_A.CDF	2/7/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2163968_FID1_A.CDF	2/8/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2164223_FID1_A.CDF	2/9/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2164502_FID1_A.CDF	2/10/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2164868_FID1_A.CDF	2/11/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2165202_FID1_A.CDF	2/13/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2165448_FID1_A.CDF	2/14/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2165720_FID1_A.CDF	2/15/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2165957_FID1_A.CDF	2/16/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2166242_FID1_A.CDF	2/17/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2166929_FID1_A.CDF	2/20/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2167214_FID1_A.CDF	2/21/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2167497_FID1_A.CDF	2/22/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2167762_FID1_A.CDF	2/23/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2168075_FID1_A.CDF	2/24/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2168766_FID1_A.CDF	2/27/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2169022_FID1_A.CDF	2/28/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2169338_FID1_A.CDF	3/1/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2169592_FID1_A.CDF	3/2/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2169873_FID1_A.CDF	3/3/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2170613_FID1_A.CDF	3/6/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2170865_FID1_A.CDF	3/7/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2171163_FID1_A.CDF	3/8/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2171407_FID1_A.CDF	3/9/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2171665_FID1_A.CDF	3/10/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2172378_FID1_A.CDF	3/13/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2172624_FID1_A.CDF	3/14/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2172896_FID1_A.CDF	3/15/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2173165_FID1_A.CDF	3/16/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2173444_FID1_A.CDF	3/17/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2174130_FID1_A.CDF	3/20/2017	4:30	1.1	0.8	347,821.616	2.3
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2174367_FID1_A.CDF	3/21/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2174637_FID1_A.CDF	3/22/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2175160_FID1_A.CDF	3/24/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2175872_FID1_A.CDF	3/27/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2176104_FID1_A.CDF	3/28/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2176354_FID1_A.CDF	3/29/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2176593_FID1_A.CDF	3/30/2017	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	C5/C6 ISOM PENEX	S2176846_FID1_A.CDF	3/31/2017	4:30	0.0	0.0	347,822.007	0.0

AMP Sample Point #4 - Alky Feed - (Unit 5028, Code 230) -1st Quarter 2017

Must take at least one sample semi-annually with a minimum of three months between samples

Unit Name	Code Name	Sample ID	Sample Date	Sample Time	Total sulfur-Antek (ppmw)	Instrument ID	Vol H2S	Vol LPG	H2S Conc (ppmv)
HF ALKYLATION	ALKY FEED	S2154422.D	1/2/2017	4:30	1.8	Antek#1	1.3	446,129.772	2.8
HF ALKYLATION	ALKY FEED	S2154659.D	1/3/2017	4:30	1.9	Antek#2	1.3	446,129.736	3.0
HF ALKYLATION	ALKY FEED	S2154935.D	1/4/2017	4:30	1.7	Antek#1	1.2	446,129.799	2.8
HF ALKYLATION	ALKY FEED	S2155193.D	1/5/2017	4:30	1.3	Antek#2	1.0	446,129.964	2.2
HF ALKYLATION	ALKY FEED	S2155448.D	1/6/2017	4:30	0.8	Antek#2	0.6	446,130.214	1.3
HF ALKYLATION	ALKY FEED	S2155692.D	1/7/2017	4:30	3.1	Antek#1	2.2	446,129.196	4.9
HF ALKYLATION	ALKY FEED	S2155902.D	1/8/2017	4:30	1.4	Antek#2	1.0	446,129.919	2.3
HF ALKYLATION	ALKY FEED	S2156165.D	1/9/2017	4:30	1.4	Antek#2	1.0	446,129.933	2.3
HF ALKYLATION	ALKY FEED	S2156429.D	1/10/2017	4:30	1.7	Antek#2	1.2	446,129.821	2.7
HF ALKYLATION	ALKY FEED	S2156715.D	1/11/2017	4:30	2.2	Antek#2	1.6	446,129.585	3.5
HF ALKYLATION	ALKY FEED	S2156970.D	1/12/2017	4:30	1.6	Antek#2	1.2	446,129.843	2.6
HF ALKYLATION	ALKY FEED	S2157244.D	1/13/2017	4:30	2.9	Antek#1	2.1	446,129.277	4.6
HF ALKYLATION	ALKY FEED	S2157484.D	1/14/2017	4:30	1.8	Antek#2	1.3	446,129.741	3.0
HF ALKYLATION	ALKY FEED	S2157696.D	1/15/2017	4:30	1.7	Antek#2	1.2	446,129.790	2.8
HF ALKYLATION	ALKY FEED	S2157951.D	1/16/2017	4:30	1.6	Antek#2	1.1	446,129.870	2.5
HF ALKYLATION	ALKY FEED	S2158215.D	1/17/2017	4:30	1.4	Antek#2	1.0	446,129.924	2.3
HF ALKYLATION	ALKY FEED	S2158491.D	1/18/2017	4:30	2.0	Antek#2	1.5	446,129.660	3.3
HF ALKYLATION	ALKY FEED	S2158767.D	1/19/2017	4:30	6.8	Antek#1	4.9	446,127.510	11.0
HF ALKYLATION	ALKY FEED	S2159041.D	1/20/2017	4:30	1.3	Antek#2	1.0	446,129.964	2.2
HF ALKYLATION	ALKY FEED	S2159302.D	1/21/2017	4:30	1.5	Antek#2	1.1	446,129.892	2.4
HF ALKYLATION	ALKY FEED	S2159531.D	1/22/2017	4:30	1.3	Antek#2	0.9	446,129.991	2.1
HF ALKYLATION	ALKY FEED	S2159807.D	1/23/2017	4:30	0.5	Antek#1	0.4	446,130.330	0.8
HF ALKYLATION	ALKY FEED	S2160061.D	1/24/2017	4:30	1.8	Antek#1	1.3	446,129.759	2.9
HF ALKYLATION	ALKY FEED	S2160340.D	1/25/2017	4:30	1.7	Antek#1	1.2	446,129.808	2.7
HF ALKYLATION	ALKY FEED	S2160602.D	1/26/2017	4:30	3.9	Antek#2	2.8	446,128.826	6.3
HF ALKYLATION	ALKY FEED	S2160875.D	1/27/2017	4:30	3.8	Antek#2	2.7	446,128.880	6.1
HF ALKYLATION	ALKY FEED	S2161093.D	1/28/2017	4:30	4.7	Antek#1	3.4	446,128.456	7.6
HF ALKYLATION	ALKY FEED	S2161309.D	1/29/2017	4:30	2.9	Antek#1	2.1	446,129.263	4.7
HF ALKYLATION	ALKY FEED	S2161559.D	1/30/2017	4:30	5.2	Antek#1	3.7	446,128.264	8.3
HF ALKYLATION	ALKY FEED	S2161808.D	1/31/2017	4:30	4.1	Antek#1	2.9	446,128.746	6.5
HF ALKYLATION	ALKY FEED	S2162073.D	2/1/2017	4:30	3.7	Antek#2	2.6	446,128.929	5.9
HF ALKYLATION	ALKY FEED	S2162397.D	2/2/2017	4:30	2.7	Antek#2	2.0	446,129.348	4.4
HF ALKYLATION	ALKY FEED	S2162659.D	2/3/2017	4:30	2.3	Antek#2	1.6	446,129.540	3.7
HF ALKYLATION	ALKY FEED	S2162915.D	2/4/2017	4:30	1.9	Antek#1	1.3	446,129.727	3.0
HF ALKYLATION	ALKY FEED	S2163124.D	2/5/2017	4:30	1.5	Antek#2	1.1	446,129.901	2.4
HF ALKYLATION	ALKY FEED	S2163394.D	2/6/2017	4:30	1.4	Antek#2	1.0	446,129.955	2.2
HF ALKYLATION	ALKY FEED	S2163660.D	2/7/2017	4:30	1.2	Antek#1	0.8	446,130.035	1.9
HF ALKYLATION	ALKY FEED	S2163948.D	2/8/2017	4:30	1.5	Antek#1	1.1	446,129.875	2.5
HF ALKYLATION	ALKY FEED	S2164427.D	2/9/2017	22:54	1.1	Antek#1	0.8	446,130.084	1.7
HF ALKYLATION	ALKY FEED	S2164208.D	2/9/2017	4:30	1.5	Antek#2	1.1	446,129.879	2.5
HF ALKYLATION	ALKY FEED	S2164483.D	2/10/2017	4:30	1.1	Antek#1	0.8	446,130.071	1.8
HF ALKYLATION	ALKY FEED	S2164727.D	2/11/2017	4:30	1.2	Antek#2	0.8	446,130.035	1.9
HF ALKYLATION	ALKY FEED	S2164930.D	2/12/2017	4:30	1.2	Antek#1	0.9	446,130.031	1.9
HF ALKYLATION	ALKY FEED	S2165182.D	2/13/2017	4:30	1.2	Antek#1	0.8	446,130.049	1.9
HF ALKYLATION	ALKY FEED	S2165436.D	2/14/2017	4:30	1.0	Antek#2	0.7	446,130.107	1.6
HF ALKYLATION	ALKY FEED	S2165700.D	2/15/2017	4:30	1.7	Antek#2	1.2	446,129.808	2.7
HF ALKYLATION	ALKY FEED	S2165942.D	2/16/2017	4:30	1.1	Antek#1	0.8	446,130.084	1.7
HF ALKYLATION	ALKY FEED	S2166223.D	2/17/2017	4:30	1.0	Antek#1	0.7	446,130.138	1.5
HF ALKYLATION	ALKY FEED	S2166452.D	2/18/2017	4:30	1.3	Antek#2	0.9	446,129.977	2.1
HF ALKYLATION	ALKY FEED	S2166657.D	2/19/2017	4:30	0.8	Antek#2	0.6	446,130.218	1.2
HF ALKYLATION	ALKY FEED	S2166909.D	2/20/2017	4:30	0.8	Antek#2	0.6	446,130.196	1.3
HF ALKYLATION	ALKY FEED	S2167747.D	2/23/2017	4:30	1.5	Antek#1	1.0	446,129.910	2.3
HF ALKYLATION	ALKY FEED	S2168056.D	2/24/2017	4:30	1.0	Antek#1	0.7	446,130.133	1.5
HF ALKYLATION	ALKY FEED	S2168283.D	2/25/2017	4:30	1.5	Antek#1	1.1	446,129.906	2.4
HF ALKYLATION	ALKY FEED	S2168498.D	2/26/2017	4:30	0.9	Antek#1	0.6	446,130.160	1.4
HF ALKYLATION	ALKY FEED	S2168746.D	2/27/2017	4:30	1.0	Antek#2	0.7	446,130.138	1.5
HF ALKYLATION	ALKY FEED	S2169010.D	2/28/2017	4:30	1.1	Antek#1	0.8	446,130.089	1.7
HF ALKYLATION	ALKY FEED	S2169318.D	3/1/2017	4:30	0.9	Antek#1	0.7	446,130.156	1.5
HF ALKYLATION	ALKY FEED	S2169577.D	3/2/2017	4:30	1.2	Antek#2	0.9	446,130.031	1.9
HF ALKYLATION	ALKY FEED	S2169854.D	3/3/2017	4:30	1.5	Antek#1	1.1	446,129.888	2.4
HF ALKYLATION	ALKY FEED	S2170099.D	3/4/2017	4:30	1.5	Antek#1	1.0	446,129.910	2.3
HF ALKYLATION	ALKY FEED	S2170310.D	3/5/2017	4:30	1.1	Antek#1	0.8	446,130.080	1.7
HF ALKYLATION	ALKY FEED	S2170593.D	3/6/2017	4:30	0.9	Antek#2	0.7	446,130.147	1.5
HF ALKYLATION	ALKY FEED	S2170854.D	3/7/2017	4:30	1.0	Antek#2	0.7	446,130.120	1.6
HF ALKYLATION	ALKY FEED	S2171144.D	3/8/2017	4:30	1.1	Antek#1	0.8	446,130.075	1.8
HF ALKYLATION	ALKY FEED	S2171393.D	3/9/2017	4:30	1.1	Antek#1	0.8	446,130.058	1.8
HF ALKYLATION	ALKY FEED	S2171647.D	3/10/2017	4:30	1.3	Antek#1	0.9	446,130.004	2.0
HF ALKYLATION	ALKY FEED	S2171894.D	3/11/2017	4:30	1.3	Antek#1	0.9	446,129.995	2.0
HF ALKYLATION	ALKY FEED	S2172105.D	3/12/2017	4:30	1.1	Antek#1	0.8	446,130.075	1.8
HF ALKYLATION	ALKY FEED	S2172359.D	3/13/2017	4:30	0.3	Antek#2	0.2	446,130.437	0.5
HF ALKYLATION	ALKY FEED	S2172613.D	3/14/2017	4:30	1.0	Antek#1	0.7	446,130.116	1.6
HF ALKYLATION	ALKY FEED	S2172877.D	3/15/2017	4:30	1.5	Antek#2	1.1	446,129.901	2.4
HF ALKYLATION	ALKY FEED	S2173151.D	3/16/2017	4:30	1.1	Antek#2	0.8	446,130.071	1.8
HF ALKYLATION	ALKY FEED	S2173426.D	3/17/2017	4:30	0.9	Antek#1	0.6	446,130.178	1.4
HF ALKYLATION	ALKY FEED	S2173655.D	3/18/2017	4:30	1.2	Antek#1	0.9	446,130.017	2.0
HF ALKYLATION	ALKY FEED	S2173866.D	3/19/2017	4:30	0.8	Antek#1	0.6	446,130.191	1.3
HF ALKYLATION	ALKY FEED	S2174111.D	3/20/2017	4:30	0.9	Antek#1	0.6	446,130.160	1.4
HF ALKYLATION	ALKY FEED	S2174356.D	3/21/2017	4:30	0.7	Antek#2	0.5	446,130.249	1.1
HF ALKYLATION	ALKY FEED	S2174618.D	3/22/2017	4:30	0.7	Antek#1	0.5	446,130.240	1.2
HF ALKYLATION	ALKY FEED	S2174873.D	3/23/2017	4:30	0.7	Antek#2	0.5	446,130.236	1.2
HF ALKYLATION	ALKY FEED	S2175142.D	3/24/2017	4:30	0.8	Antek#2	0.6	446,130.200	1.3
HF ALKYLATION	ALKY FEED	S2175394.D	3/25/2017	4:30	2.2	Antek#1	1.6	446,129.594	3.5
HF ALKYLATION	ALKY FEED	S2175612.D	3/26/2017	4:30	0.8	Antek#1	0.6	446,130.214	1.3
HF ALKYLATION	ALKY FEED	S2175853.D	3/27/2017	4:30	0.8	Antek#1	0.6	446,130.205	1.3

Dreager Tube Sampling
AMP Sample Point #5 - Isom Make-up Hydrogen

Note: Monitoring Requirement - Must take at least one sample semi-annually with a minimum of three months between samples.

Date	Time (hrs)	Result (ppm H2S)	Comments	Sampler
1/2/2017	7:53	0		YI8
2/6/2017	8:24	0		BXA
3/6/2017	7:44	0		BXA

Dreager Tube Sampling
AMP Sample Point #6 - PSA Offgas

Note: Monitoring Requirement - Must take at least one sample semi-annually with a minimum of three months between samples

Date	Time	Result (ppm H2S)	Comments	Sampler
1/3/2017	7:49	0		CZ8
2/6/2017	9:33	0		E3C
3/6/2017	11:28	0		IFG

Appendix B

Quarterly CGA Results

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	2-AI-103	**Calender Quarter:**	FIRST
Unit:	#2 CRUDE	**Analyzer Span:**	0 - 10%
Component:	OXYGEN (O_2)	**Serial Number:**	3.246580.2
Date:	Monday, January 09, 2017	**Technician:**	BRYAN WINN
Start Time:	11:02	**End Time:**	12:19

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1695
High Range	1550

Cylinder Pressure (End)	
Low Range	1690
High Range	1545

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC171855	CC174008
Cylinder Certification Date:	5/6/2010	2/17/2011
Cylinder Expiration Date:	5/6/2018	2/17/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.162	9.998

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**4.39**	**8.50**
Range of Allowance (±15%) High	**5.94**	**11.50**
Test Run #1	**5.12**	**9.95**
Test Run #2	**5.12**	**9.95**
Test Run #3	**5.12**	**9.95**
Average Result (Cm)	**5.12**	**9.95**
Accuracy (%)	**-0.81**	**-0.48**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	2-AI-104	**Calender Quarter:**	FIRST
Unit:	#2 CRUDE	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.246579.2
Date:	Monday, January 09, 2017	**Technician:**	BRYAN WINN
Start Time:	11:02	**End Time:**	12:19

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1895
High Range	1505

Cylinder Pressure (End)	
Low Range	1895
High Range	1505

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC402777	XC024745B
Cylinder Certification Date:	7/1/2014	2/21/2011
Cylinder Expiration Date:	7/1/2017	2/21/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	24.9	54.4

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**21.12**	**46.24**
Range of Allowance (±15%) High	**28.58**	**62.56**
Test Run #1	**23.42**	**52.24**
Test Run #2	**23.41**	**52.18**
Test Run #3	**23.41**	**52.24**
Average Result (Cm)	**23.41**	**52.22**
Accuracy (%)	**-5.78**	**-4.01**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	32-AI-250	**Calender Quarter:**	FIRST
Unit:	HDH	**Analyzer Span:**	0 - 10%
Component:	OXYGEN (O_2)	**Serial Number:**	3.346624.7
Date:	Monday, January 09, 2017	**Technician:**	JACOB PAZUREK
Start Time:	10:59	**End Time:**	12:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1720
High Range	1670

Cylinder Pressure (End)	
Low Range	1715
High Range	1665

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC327623	CC337712
Cylinder Certification Date:	2/4/2011	2/3/2011
Cylinder Expiration Date:	2/4/2019	2/3/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.023	10.000

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**4.27**	**8.50**
Range of Allowance (±15%) High	**5.78**	**11.50**
Test Run #1	**5.03**	**10.03**
Test Run #2	**5.02**	**10.03**
Test Run #3	**5.02**	**10.03**
Average Result (Cm)	**5.02**	**10.03**
Accuracy (%)	**0.00**	**0.29**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	32-AI-251	**Calender Quarter:**	FIRST
Unit:	HDH	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.346654.7
Date:	Monday, January 09, 2017	**Technician:**	JACOB PAZUREK
Start Time:	10:59	**End Time:**	12:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1810
High Range	1570

Cylinder Pressure (End)	
Low Range	1805
High Range	1565

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC48525	CC400311
Cylinder Certification Date:	3/20/2015	7/10/2013
Cylinder Expiration Date:	3/20/2018	7/10/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	25.00	57.71

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**21.25**	**49.05**
Range of Allowance (±15%) High	**28.75**	**66.37**
Test Run #1	**25.22**	**58.19**
Test Run #2	**25.28**	**58.19**
Test Run #3	**25.32**	**58.09**
Average Result (Cm)	**25.28**	**58.15**
Accuracy (%)	**1.10**	**0.77**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	42-AI-3	**Calender Quarter:**	FIRST
Unit:	#3 SRU	**Analyzer Span:**	0 - 500 PPM
Component:	SULFUR DIOXIDE (SO_2)	**Serial Number:**	3.245249.3
Date:	Tuesday, January 10, 2017	**Technician:**	BRYAN WINN
Start Time:	13:01	**End Time:**	14:20

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1700
High Range	1910

Cylinder Pressure (End)	
Low Range	1695
High Range	1900

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC175894	CC357324
Cylinder Certification Date:	3/3/2011	3/31/2014
Cylinder Expiration Date:	3/3/2019	3/31/2022
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	128.5	280.1

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**109.23**	**238.09**
Range of Allowance (±15%) High	**147.78**	**322.12**
Test Run #1	**128.97**	**278.23**
Test Run #2	**128.98**	**278.93**
Test Run #3	**129.08**	**278.88**
Average Result (Cm)	**129.01**	**278.68**
Accuracy (%)	**0.40**	**-0.51**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	42-AI-4	**Calender Quarter:**	FIRST
Unit:	#3 SRU	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	3.245244.3
Date:	Tuesday, January 10, 2017	**Technician:**	BRYAN WINN
Start Time:	13:01	**End Time:**	14:20

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1900
High Range	1700

Cylinder Pressure (End)	
Low Range	1900
High Range	1700

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC247661	CC335268
Cylinder Certification Date:	3/27/2014	2/11/2011
Cylinder Expiration Date:	3/27/2022	2/11/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	4.967	9.521

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**4.22**	**8.09**
Range of Allowance (±15%) High	**5.71**	**10.95**
Test Run #1	**4.99**	**9.46**
Test Run #2	**4.99**	**9.47**
Test Run #3	**5.00**	**9.48**
Average Result (Cm)	**4.99**	**9.47**
Accuracy (%)	**0.53**	**-0.54**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	31-AI-1A	**Calender Quarter:**	FIRST
Unit:	#2 SRU	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	C149549
Date:	Tuesday, January 10, 2017	**Technician:**	JACOB PAZUREK
Start Time:	13:17	**End Time:**	13:54

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1110
High Range	1220

Cylinder Pressure (End)	
Low Range	1090
High Range	1190

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC37936	CC175979
Cylinder Certification Date:	7/5/2011	7/7/2011
Cylinder Expiration Date:	7/5/2019	7/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.122	10.070

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**4.35**	**8.56**
Range of Allowance (±15%) High	**5.89**	**11.58**
Test Run #1	**5.15**	**10.15**
Test Run #2	**5.15**	**10.15**
Test Run #3	**5.15**	**10.15**
Average Result (Cm)	**5.15**	**10.15**
Accuracy (%)	**0.50**	**0.81**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	31-AI-1B	**Calender Quarter:**	FIRST
Unit:	#2 SRU	**Analyzer Span:**	0 - 500 PPM
Component:	SULFUR DIOXIDE (SO_2)	**Serial Number:**	6981
Date:	Tuesday, January 10, 2017	**Technician:**	JACOB PAZUREK
Start Time:	13:17	**End Time:**	13:54

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1110
High Range	1220

Cylinder Pressure (End)	
Low Range	1090
High Range	1190

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC37936	CC175979
Cylinder Certification Date:	7/5/2011	7/7/2011
Cylinder Expiration Date:	7/5/2019	7/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	127.000	279.500

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**107.95**	**237.58**
Range of Allowance (±15%) High	**146.05**	**321.43**
Test Run #1	**121.81**	**276.66**
Test Run #2	**123.47**	**276.55**
Test Run #3	**122.77**	**276.71**
Average Result (Cm)	**122.68**	**276.64**
Accuracy (%)	**-3.40**	**-1.02**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	08-AI-0030A	**Calender Quarter:**	FIRST
Unit:	8-B-1	**Analyzer Span:**	0 - 15%
Component:	OXYGEN (O_2)	**Serial Number:**	3.359909.2
Date:	Wednesday, January 11, 2017	**Technician:**	BRYAN WINN
Start Time:	13:56	**End Time:**	15:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1700
High Range	1600

Cylinder Pressure (End)	
Low Range	1695
High Range	1595

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	SG9169569BAL	EB0020125
Cylinder Certification Date:	7/1/2013	10/7/2011
Cylinder Expiration Date:	7/1/2021	10/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.002	10.010

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**4.25**	**8.51**
Range of Allowance (±15%) High	**5.75**	**11.51**
Test Run #1	**5.00**	**10.01**
Test Run #2	**5.00**	**10.01**
Test Run #3	**5.00**	**10.01**
Average Result (Cm)	**5.00**	**10.01**
Accuracy (%)	**-0.04**	**0.00**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	08-AI-0030B	**Calender Quarter:**	FIRST
Unit:	8-B-1	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.359841-2
Date:	Wednesday, January 11, 2017	**Technician:**	BRYAN WINN
Start Time:	13:56	**End Time:**	15:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	2100
High Range	1600

Cylinder Pressure (End)	
Low Range	2095
High Range	1595

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC323462	XC024745B
Cylinder Certification Date:	3/28/2016	2/21/2011
Cylinder Expiration Date:	3/28/2019	2/21/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	25.34	54.45

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**21.54**	**46.28**
Range of Allowance (±15%) High	**29.14**	**62.62**
Test Run #1	**25.14**	**53.29**
Test Run #2	**25.37**	**53.62**
Test Run #3	**25.31**	**53.18**
Average Result (Cm)	**25.27**	**53.36**
Accuracy (%)	**-0.26**	**-2.00**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	7-AI-205	**Calender Quarter:**	FIRST
Unit:	VRU	**Analyzer Span:**	0 - 5%
Component:	PROPANE (C_3H_8)	**Serial Number:**	ERFH-0934
Date:	Tuesday, January 17, 2017	**Technician:**	JACOB PAZUREK
Start Time:	14:13	**End Time:**	14:34

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1390
High Range	1290

Cylinder Pressure (End)	
Low Range	1380
High Range	1280

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	SG9160857BAL	LCCOSA10333
Cylinder Certification Date:	3/24/2014	6/22/2011
Cylinder Expiration Date:	3/24/2022	6/22/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	1.36	2.63

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**1.16**	**2.23**
Range of Allowance (±15%) High	**1.57**	**3.02**
Test Run #1	**1.53**	**2.30**
Test Run #2	**1.53**	**2.44**
Test Run #3	**1.53**	**2.37**
Average Result (Cm)	**1.53**	**2.37**
Accuracy (%)	**11.85**	**-9.80**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-106	**Calender Quarter:**	FIRST
Unit:	WASTE WATER	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	H004440001
Date:	Wednesday, January 18, 2017	**Technician:**	BRYAN WINN
Start Time:	12:52	**End Time:**	13:28

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1925
High Range	1980

Cylinder Pressure (End)	
Low Range	1920
High Range	1975

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC330083	CC159459
Cylinder Certification Date:	2/11/2015	2/16/2015
Cylinder Expiration Date:	2/11/2018	2/16/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	75.3	167.9

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**64.01**	**142.72**
Range of Allowance (±15%) High	**86.60**	**193.09**
Test Run #1	**72.15**	**169.20**
Test Run #2	**71.16**	**172.00**
Test Run #3	**71.45**	**172.10**
Average Result (Cm)	**71.59**	**171.10**
Accuracy (%)	**-4.93**	**1.91**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Opacity Audit

Saint Paul Park, MN

Tag #:	8-AI-3A	**Filter Certification Date:**	December 5, 2016
Unit:	FCC	***Note: Cert. date must be no later than 6 months of test***	
Date:	Tuesday, January 24, 2017	**Instrument Serial No:**	440-A-6000044023-B21/423
Technician:	BRYAN WINN	**Monitor Pathlength**	60.125"
Start Time:	13:03	**Outlet Pathlength:**	60.125"
End Time:	14:38	**Pathlength Corrected:**	No

Calibrated Neutral Density Filter Values

Actual Optical Density Filter Values	
Low Range	13.34
Mid Range	20.11
High Range	34.17

Adjusted Optical Density Filter Values	
Low Range	N/A
Mid Range	N/A
High Range	N/A

Opacity Audit Readings

Run Number	Range	Calibration Filter (%Ca)	Instrument Reading (%Cm)	Arithmetic Values (Ca - Cm)		
				Low	Mid	High
1-1	Low	13.34	15.03	**-1.69**		
1-2	Mid	20.11	21.75		**-1.64**	
1-3	High	34.17	35.1			**-0.93**
2-1	Low	13.34	14.51	**-1.17**		
2-2	Mid	20.11	20.57		**-0.46**	
2-3	High	34.17	35.28			**-1.11**
3-1	Low	13.34	15.03	**-1.69**		
3-2	Mid	20.11	21.76		**-1.65**	
3-3	High	34.17	35.44			**-1.27**
4-1	Low	13.34	15.74	**-2.40**		
4-2	Mid	20.11	21.76		**-1.65**	
4-3	High	34.17	34.61			**-0.44**
5-1	Low	13.34	15.58	**-2.24**		
5-2	Mid	20.11	21.75		**-1.64**	
5-3	High	34.17	35.44			**-1.27**

Opacity Audit Results

	Low	Mid	High
Arithmetic Mean	**-1.84**	**-1.41**	**-1.00**
Standard Deviation	**0.49**	**0.53**	**0.35**
Confidence Coefficient	**0.61**	**0.66**	**0.43**
Calibration Error (%)	**2.45**	**2.07**	**1.43**
Allowable Calibration Error (%)	**≤ 3%**	**≤ 3%**	**≤ 3%**
Test Results			

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from Saint Paul Park Refining Company (SPPRC) Title V Permit and QA/QC Program per Minnesota State Rule 7017 Subpart (1).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	11-AI-1	**Calender Quarter:**	FIRST
Unit:	REFORMER	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	G0024
Date:	Friday, February 03, 2017	**Technician:**	BRYAN WINN
Start Time:	8:36	**End Time:**	10:09

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1695
High Range	1695

Cylinder Pressure (End)	
Low Range	1690
High Range	1690

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC330083	CC159459
Cylinder Certification Date:	2/11/2015	2/13/2015
Cylinder Expiration Date:	2/11/2018	2/13/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	75.3	167.9

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**63.99**	**142.72**
Range of Allowance (±15%) High	**86.57**	**193.09**
Test Run #1	**75.74**	**188.4**
Test Run #2	**76.45**	**187.7**
Test Run #3	**76.78**	**184.7**
Average Result (Cm)	**76.32**	**186.93**
Accuracy (%)	**1.39**	**11.34**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-146	**Calender Quarter:**	FIRST
Unit:	FLARE	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	1060
Date:	Monday, February 06, 2017	**Technician:**	BRYAN WINN
Start Time:	15:25	**End Time:**	15:50

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1700
High Range	1700

Cylinder Pressure (End)	
Low Range	1695
High Range	1695

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC330083	CC159459
Cylinder Certification Date:	2/11/2015	2/16/2015
Cylinder Expiration Date:	2/11/2018	2/16/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	75.3	167.9

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**64.01**	**142.72**
Range of Allowance (±15%) High	**86.60**	**193.09**
Test Run #1	**72.00**	**165.11**
Test Run #2	**71.73**	**164.70**
Test Run #3	**71.83**	**166.09**
Average Result (Cm)	**71.85**	**165.30**
Accuracy (%)	**-4.58**	**-1.55**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-147 - RANGE A	**Calender Quarter:**	FIRST
Unit:	FLARE	**Analyzer Span:**	0-5000 PPM
Component:	H_2S AS SULFUR DIOXIDE (SO_2)	**Serial Number:**	SL-09790714
Date:	Monday, February 06, 2017	**Technician:**	BRYAN WINN
Start Time:	13:07	**End Time:**	14:11

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	2175
High Range	2045

Cylinder Pressure (End)	
Low Range	2170
High Range	2040

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC501425	CC467298
Cylinder Certification Date:	5/20/2016	9/24/2015
Cylinder Expiration Date:	5/20/2017	9/24/2018
Type of Cylinder Certification:	Certified Standard- Spec	Certified Standard- Spec
Concentration (ppm or % Ca):	1275.0	2782.0

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**1083.75**	**2364.70**
Range of Allowance (±15%) High	**1466.25**	**3199.30**
Test Run #1	**1310.23**	**2862.12**
Test Run #2	**1305.09**	**2878.52**
Test Run #3	**1300.10**	**2897.39**
Average Result (Cm)	**1305.14**	**2879.34**
Accuracy (%)	**2.36**	**3.50**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Opacity Certification Services, LLC
A Proud Veteran-Owned Business
8600 Harbor Drive
Raleigh, North Carolina 27615
Phone 919.215.9384
Fax 919.846.6041
Web: www.opacitycert.com

Results of NIST-Traceable Opacity Filter (Audit Attenuators) Certification

Customer: **NTE St. Paul Park Refining Co.**

Date of Certification: [illegible]	Document No. **120516-02**
Date of Expiration: [illegible]	

*Filters (Attenuators) are certified in accordance with 40 CFR Part 60, Subpart B, "**Performance Specification 1**", as well as the most current **ASTM D6216** standard and **Opacity Procedure 3**. Laboratory spectrophotometer is calibrated daily by use of NIST SRM2031b standard reference materials.*

Spectrophotometer

Spectrophotometer: **Varian (HP) Cary 50 Conc**		Serial Number: **EL06023153**
Scanning Range: **380-780nm**	Data Interval: **10nm**	Spectral Bandpass: **1.5nm**
Maximum Accuracy: **± 0.100 Absolute Opacity**		Laboratory Temperature: **72° F** (± 3°)/**22° C** (± 1°)

NIST Standard Reference Material (SRM)

SRM Type: **NIST 2031b series**	Serial Number: **Blank; 709-10; 709-30; 709-90**
SRM Date of Certification: **January 27, 2015**	SRM Date of Expiration: **January 31, 2017**

Opacity Monitor

Opacity Monitor Make/Model:	**Thermo 440** series		
Monitor Light Source:	**Incandescent**	Straight stack correction factor:	**1.000**
Angle of Incidence:	**10 degrees**	Correction factor (if given):	**1.000**

Opacity Filter Data Set ID#: [illegible]

Serial Number	Opacity	Transmittance	Optical Density	Previous Opacity	Δ Opacity
Q05A	**13.34%**	86.66%	0.0622	13.28%	+0.06
F43A	**20.11%**	79.89%	0.0975	20.11%	0.00
F44A	**34.17%**	65.83%	0.1816	34.22%	-0.05

Signature of Spectrophotometer Operator